

Daemen College

## Daemen Digital Commons

---

Nursing Master's Theses

Student Scholarship

---

7-22-2020

### Implementing an m-Health Program to Prevent HIV in MSM and TGW

Marja Cormack-Price

Follow this and additional works at: <https://digitalcommons.daemen.edu/theses>



Part of the [Nursing Commons](#)

---

Implementing an m-Health Program to Prevent HIV in MSM and TGW

Marja Cormack-Price, BSN, RN

Daemen College

Submitted to the Faculty of Daemen College Department of Nursing

In partial fulfillment of the requirements of the degree of

Master of Science

Adult-Gerontology Primary Care Nurse Practitioner





**Project Approval Form****Daemen College****Department of Nursing**

This is to certify that Marja Cormack-Price in the Master of Science in Adult-Gerontology Primary Care Nurse Practitioner program, Daemen College Nursing Department has successfully completed the EBP Project Proposal entitled, *“Implementing an m-Health Program to Prevent HIV in MSM and TGW”* in partial fulfillment of the requirements for the degree of the Master of Science in Adult-Gerontology Primary Care Nurse Practitioner.

Project Defense Date: July 22, 2020

Student: Marja Cormack-Price

Committee Chair: Janice Hobba-Glose, DNS, RN

Committee Member: \_\_\_\_\_

### **Acknowledgments**

Thanks, be unto God who is the author and finisher of my faith. Special thanks to my husband who has been nothing but supportive through the entire nurse practitioner program. Thank you to my beautiful daughter, and witty mother, (twin one and twin two) who have been encouraging and understanding from day one. I love all of you guys so much, and this work is dedicated to you! I also want to thank my chair, Dr. Janice Hobba-Glose for your guidance throughout this process.

## Table of Contents

<b>Abstract</b>	
<b>Chapter I</b>	
Abstract	8
Introduction	10
Background	11
Identification of the Problem	19
Significance	19
EBP Proposed Purpose	20
PICOT Question	21
Summary	21
<b>Chapter II</b>	
Introduction	22
Synthesis of Evidence Themes	23
Synthesis of the Whole	34
Proposed Clinical Change	34
Summary	35
<b>Chapter III</b>	
Theoretical Framework	36
EBP Model	39
Application of Framework to EBP Proposal	40
Congruence of Framework to EBP Proposal	42
Setting	42
System Focus	43
Summary	45
<b>Chapter IV</b>	
Introduction	46
Narrative Description of Proposed Clinical Change	47
Stakeholders and their Role	49
Step by Step Description	52
Workflow	59
Education Plan	59
Desired Outcomes	63
Data Analysis Plan	64
Timeline	68
Budget	69
Return on Investment	71
Communication Plan	71
Summary	72
<b>Chapter V</b>	
Introduction	74
Potential Impact of Project	74
Anticipated Outcomes	75
Implications for Practice	76
Future EBP Research	77
Summary	78
<b>References</b>	80

<b>Appendices</b>	
Appendix A: Recruitment Letter	85
Appendix B: HIV Risk Survey	86
Appendix C: Matrix of Evidence	88



### Abstract

**Clinical Problem:** Rates of HIV in the LGBTQ population, specifically persons from the men who have sex with men (MSM) and transgender women (TGW) group, have a higher rate of HIV when compared to the public. These rates continue to increase and remain most prevalent amongst this group. It has been identified that high risk sexual behaviors (HRSB) lead to higher rates of HIV transmission and acquisition. According to the literature, the use of social media is prevalent in the LGBTQ community as they tend to use social media in sex seeking behaviors.

**Significance:** There is an urgency and importance for this project due to the high rates of HIV and sexually transmitted infections (STI) among individuals of the LGBTQ community specifically MSM and TGW.

**PICOT Question:** *Does the implementation of a mobile technology (m-Health) program (I) among community dwelling MSM and TG women (P) increase knowledge of HIV and STI prevention strategies, decrease the numbers of high risk sexual behaviors and improve the number of healthcare provider interactions (O) when compared to not implementing an m-Health program (C) within six months (T)?*

**Clinical Change:** Development of a mobile technology (m-Health) program.

**Desired Outcome:** Provide health education to the MSM and TGW communities on methods to prevent HIV/STI infection, reduce HRSB and increase patient/provider encounters.

**Summary:** The problem within the MSM and TGW community is they have higher rates of HIV when compared to the general population. Evidence shows this population face barriers such as discrimination and stigma related to their sexual preferences and choices. This judgment often leads to missed or no clinical appointments to primary care providers, which ultimately reduces patient/provider interactions. There is also evidence that suggests this population has used mobile technologies to obtain HIV/STI information. Additionally, research shows this population uses mobile technology to seek dates and sex

online. This activity leads to high risk sexual behaviors such as multiple sexual partners, and inconsistent and or incorrect condom use. Development of an m-health program is one-way clinicians may reach this population, create a rapport with this community, and potentially decrease the rate of HIV acquisition and transmission.

*Keywords: Transgender, Gay, homosexual, or men who have sex with men, HIV, HIV prevention, mHealth, phone applications, apps, smartphone, mobile phones, and cell phones.*

**Implementation of mobile technology to decrease high risk sexual behavior and promote HIV prevention**

## **Implementing an m-Health Program to Prevent HIV in MSM and TGW**

### **Chapter 1**

Individuals that are from the LGBTQ (lesbian, gay, bisexual, transgender, and queer) community are those persons that have a gender identity different from the genetically assigned sex at the time of birth or whose gender manifestations are socially or culturally uncharacteristic (Newsome, Colip, Sharon, and Conklin, 2017). Within the LGBTQ community, there are many subsets including men who have sex with men (MSM) and transgender women (TGW). Men who have sex with men and TGW are at higher risk for contraction of Human Immunodeficiency Virus (HIV) and carry a higher burden of HIV when compared to the general population (Irbarren, Ghazzawi, Sheinfil, Frasca, Brown, Rios, Rael, Balan, Crespo, Dolezal, Giguere, and Carballo-Diequez, 2018). The subset MSM and transgender persons are difficult to access for research (Irbarren et al., 2018).

The Centers for Disease Control (CDC) reports, between 2004-2014, MSM has had an increase by six percent of newly diagnosed cases of HIV when compared to the decrease of 19% of the cases in the general population (Irbarren et al., 2018). Men having sex with men make up six percent of the population in the United States (US), that now accounts for 56% of the estimated 1.1 million individuals living with HIV (Irbarren et al., 2018). Additionally, although 0.6% or about 1.4 million adults identify as transgender in the US, according to a 2013 report they are among the newly HIV diagnosis cases, which is three times the national average (Irbarren et al., 2018). A full 22% of TGW are living with HIV. Between 2009 and 2014, 84% of TGW was newly diagnosed HIV according to the National HIV Surveillance System. The CDC

projection analysis estimates that within the MSM risk group, one out of every six is at risk for acquiring HIV in his lifetime and if current trends persist, half of all African-American MSM and one-quarter of Latino MSM will be included in this number (Irbarren et al., 2018).

### **Background**

The prevalence data is clear that urban MSM and TGW continue to have increased rates of HIV infections in the US (Irbarren et al., 2018). Despite the prevalence of HIV in the MSM and TGW communities, much of this population are not reached by current prevention interventions (Patel et al., 2016). The transmission of HIV depends in part on high-risk behavior and not sexual identity. It is the behavior of an individual that puts them at higher risk for contraction, or transmission of HIV (Sevelius, Keatley, Calma, & Arnold, 2016).

Social media use is prevalent amongst the youth in the MSM and TGW population. Studies have shown that HIV prevalence is high in this community in part due to the use of social media for sex seeking online which leads to engaging in high risk sexual behaviors (HRSB). This behavior may potentially expose the person to sexually transmitted infections (STI) and HIV (Fields et al., 2020). For example, the United States Geosocial Networking applications (GSN apps) are networking applications that use the participants' locations to seek new sexual partners. These GSN apps are frequently used by the LGBTQ population in sex seeking behaviors (Fields et al., 2019). The Internet has been a platform used to promote communication among people, (Choi et al., 2017) and has become a common medium to seek out friends, sexual and romantic relationships. There has been an increase in online dating and sex seeking due to the proliferation of mobile smartphones, advances in internet access, and mobile technology making online sex seeking and dating accessible and easier (Choi et al.,

2017). Online dating and seeking sexual partners are most popular among the LGBTQ communities more specifically the populations of MSM and TGW (Choi et al., 2017). Sexual minorities have used internet services via specific online discussion groups and mobile applications making it easier to meet each other (Choi et al., 2017). Studies suggest that online sex seeking is associated with HIV risk when compared to off-line sex seeking. The risk of HIV is higher due to having multiple sexual partners, increased rates of unprotected sex, and a greater risk of being diagnosed with sex transmitted infections (Choi et al., 2017).

Men having sex with men have reported using the internet as their preference for meeting sexual partners when compared to clubs, and bars (Iribarren et al., 2018). This preference attributes to a decrease in levels of stigma associated with anonymous encounters via the internet. There has been a greater level of confidentiality that social media provides, which increases the likelihood participants will use social media to seek health information and may more readily engage in virtual health promotion (Iribarren et al., 2018). This can encourage individuals who are wary of disclosing stigmatized behavior such as multiple sex partners and condomless intercourse, (Iribarren et al., 2018) to reach out to health care professionals or at least absorb information that is presented to them in a virtual format.

Kuhns, Garofalo, Hildalgo, Hirshfield, Pearson, Bruce, Batey, Radix, Belkind, Jia, and Schnall (2020), conducted a randomized controlled trial that described MyPEEPS mobile as an intervention that is based on the social personal framework which builds on the social learning theory. This theory adds important psychosocial and contextual risk factors such as partner, peer, and family relationships related to youth vulnerability to HIV risk (Kuhns et al., 2020). The MyPEEPS mobile intervention provides educational information regarding STI and HIV

information among young men who have sex with men (YMSM), which builds skills for condom use, emotional regulation, raises awareness about minority stress due to sexual identity, and negotiating interpersonal and substance related risk. The learning process of the intervention is facilitated through the stories of four peeps (Nico, Philip, Tommy, and Artemio) who are composites of YMSM that participated in the formative phase of the original MyPEEPS intervention development process (Kuhns et al., 2020). The common theme throughout the intervention is goal setting through an activity called bottom-line and sexual risk reduction. The bottom-line theme challenges participants to articulate how much risk they are willing to accept when engaging in different sexual acts that include oral sex, and anal sex. These risks are continually reconsidered after exposure to the intervention activities of self-awareness, building knowledge, and self-efficacy (Kuhns et al., 2020). Utilizing a responsive web design, the conventional website is usable with touchscreens and viewable on small screens. Content is delivered through a series of scenarios, games, and role-plays within 21 mobile activities which are divided into four sequential “PEEPScapades” or modules that are targeted to sexual minority younger men who are less sexually experienced (Kuhns et al., 2020). The content is accessible for the period between randomization and a three-month follow-up visit. The content can be revisited and does not expire but must be completed linearly. Movement throughout the app is encouraged with both in-app trophies and monetary incentives for the time it takes to complete the activities. Login and password credentials, and an automatic log off the app after 20 minutes of inactivity is used to protect privacy (Kuhns et al., 2020).

According to Hidalo et al. (2015), MyPEEPS is the acronym for Male Youth Empowerment, Education, and Prevention around Sexuality. This is a group-level intervention to

reduce sexual risk behaviors among young MSM. Enlightened by cognitive theory, MyPEEPS's goal is to educate participants regarding increased self-efficacy for condom use, generate situation specific risk reduction strategies, increase awareness about the influence of substance use on sexual risk, and modes of HIV transmission (Hidalgo et al., 2015).

MyPEEPS was developed by an investigation team based on qualitative, semi-structured qualitative interviews conducted among a sample of 21 multiethnic YMSM. The MyPEEPS intervention is a manualized curriculum that consists of six modular group sessions administered twice weekly for three weeks. Group census was kept between five and 10 young men to enhance opportunities for prosocial, peer feedback regarding sexual health behavior due to adolescent behavior being peer influenced (Hidalgo et al., 2015). Intervention sessions were developmentally appropriate with didactic approaches that were linked with salubrious sexual health behaviors in adolescents. The sessions were presented concretely with brief lectures, group exercises, role plays, large and small group discussions, and demonstrations. The sessions were introduced through a cartoon vignette in which a fictitious young MSM managed his sexual health against a backdrop of family based, personal, and relational challenges (Hidalgo et al., 2015). These scenarios and characters were developed from the qualitative findings.

HIV prevention such as pre-exposure prophylaxis (PrEP) and treatment tools carry the potential to curb transmission in young black men who have sex with men (YBMSM) and eliminate disparities in this community (Fields et al., 2020). Difficulty in identifying and accessing YBMSM at greatest risk of HIV acquisition and transmission present significant challenges for prevention. Poor access to this population at greatest risk by public health practitioners impede the implementation of effective prevention strategies and contribute to the

ongoing disparity in HIV infection among this group (Fields et al.,2010). Racial HIV disparities among MSM reflects an increasing prevalence of untreated STI, lower HIV testing rates, and later diagnosis of HIV among YBMSM when compared to other MSM (Fields et al.,2010). Each of these factors is exacerbated in YMSM which places YBMSM at increased risk. Low awareness, access, and uptake of PrEP specifically among this population threaten to widen HIV disparities versus eliminating them.

Social media has enabled other technologies to emerge as gateways for delivery of health information to at risk individuals (Chiu et al., 2016). Internet based studies have focused on health behaviors and health related conditions such as insomnia, anxiety, diabetes, and now HIV. There has been evidence of promising results in using technology for the prevention of stigmatizing diseases such as HIV prevention (Chiu et al., 2016). Harnessing Online Peer Education (HOPE), an African American and Latino MSM at risk of HIV Facebook intervention group study that was conducted revealed, participants were twice as likely to request HIV home testing kits. Additionally, the Just/ us study looked at youth ages 18-24 years who are at risk for HIV acquisition. The participants were sent messages via Facebook, and after 2 months reported higher levels of condom use (Chiu et al., 2016). Internet based HIV interventions can potentially decrease HIV related stigma, shame, promote patient's ability for cooperation in social activities and increase social support for them as well as promote decreasing risky behaviors (Niakan et al., 2107).

There is an urgent need for HIV prevention interventions targeting young MSM as they compose the highest and most racially disproportionate rates of HIV incidence yet have not been a high focus of behavioral intervention research (Hidalgo et al.,2015). Men who have sex with



men's HIV risk behavior has been linked to skills-based and social-cognitive factors. Low knowledge, ineffective condom use skills, self-efficacy regarding safer sex, and ineffective sexual health related communication with sexual partners are namely the issues (Hidalgo et al., 2015).

Racial and ethnic minority TGW and MSM encounter unique challenges in understanding and accessing the most up-to-date HIV prevention information. Mobile technologies offer an effective way that is low cost to remain in contact with these populations. Studies suggest that technologies are a crucial mechanism for relaying HIV related information (Linnemayr, MacCarthy, Kim, Giguere, Dieguez, & Barreras, 2018). Over half of Americans own a smartphone and blacks and Latinos are three to four times more likely than whites to depend on their smartphone as their primary tool for communication and access to the internet (Linnemayr et al., 2018).

Cao et al. (2018) performed a cross-sectional survey in China that examined STI information seeking behaviors among Chinese YMSM and the correlation with online physician visits. This group of YMSM is often discouraged from obtaining health services due to mistrust and fear of discrimination which affects timely treatment and linkage to care. This mistrust also leads to missed office visits. Although YMSM are disproportionately affected by HIV and other STI, this group has also demonstrated reluctance in seeking healthcare (Cao et al., 2018). Evidence of the study by Cao et al., (2018), suggests online information seeking may encourage YMSM to obtain sexual health services, receive testing for STI, as well as identify and see trustworthy physicians. This study also showed participants in the study were interested in using an MSM friendly physician finding function to access a health care provider (Cao et al., 2018).

In recent decades, people with HIV infection have faced important challenges such as choosing to be involved in healthy relationships, managing stigma, disclosure of HIV status, and low health literacy (Niakan et al., 2017). Utilization of web-based intervention programs can assist those persons who are HIV positive to obtain useful information to help in managing the disease process and using proper medications without referral to a healthcare center (Niakan et al., 2107). CyberSegna and HITSystem are Internet-based HIV interventions that are increasingly common and can be used as social support among people living with HIV. Online group-based interventions are also commonly used to influence social support and increase inspiration for positive adjustment and high-risk sexual behavior. Such interventions potentially decrease HIV related stigma, shame, and risk behaviors to promote a patient's ability for social activities and increase social support (Niakan et al., 2017).

**What is known**

It is known from the literature that the rates of HIV are higher in the LGBTQ community specifically MSM and TGW (Fields et al., 2020). Despite composing the largest and most disproportionate rates of HIV, MSM, and TGW have been less frequently the focus of behavior intervention research (Hidalgo et al., 2015). Furthermore, it is known from the literature that the use of social media is prevalent in the LGBTQ community as they tend to use social media in sex seeking behaviors (Choi et al., 2017). High risk sexual behavior (HRSB) may lead to increased rates of HIV infection if persons are not aware of the risks of infection or choose to ignore the risks by engaging in HRSB. It is known that many MSM and TGW are hesitant to seek healthcare services and many times do not trust healthcare professionals to provide them with honest and non-discriminatory care (Cao et al., 2018). As a result of fearing healthcare

interactions, many in the MSM and TGW community will turn to social media including the internet, Twitter, Facebook, email, and text messaging as they seek out healthcare that is not felt to be discriminatory (Choi et al., 2017).

The intervention Male Youth Pursuing Empowerment and Prevention around Sexuality (MyPEEPS) is a group mobile app-based intervention designed to decrease high risk sexual behaviors among young men who have sex with men (YMSM). The aim of this application-based intervention is used to educate participants regarding modes of HIV transmission, increase assertive safer sex-related communication, improve self-efficacy for condom use, and promote awareness regarding the influence of substance use on sexual risk (Hidalgo et.al., 2015). MyPEEPS is based on the Social-Personal Framework that builds on Social Learning Theory with the addition of contextual as well as psychosocial factors related to youth susceptibility to HIV risk (Kuhns et al., 2020).

As MSM and TGW are familiar with mobile technology, this may be a way for healthcare providers to reach this population who are reluctant to seek care due to fears of discrimination. Mobile or Web-based information seeking could encourage persons from the LGBTQ community to find providers and methods of communication that are felt to be familiar and trustworthy for providing accurate information on HIV prevention and interventions. The literature has shown us the use of the internet, social media platforms, and research studies are an exclusive conduit to involve these underrepresented populations (Irbarren et al., 2018).

### **What is not known**

Because the MSM and TGW communities are difficult to reach for research purposes (Irbarren et al., 2018), it is not known if increasing the knowledge of the community about HIV

prevention will decrease the HRSB and the potential prevalence of HIV in the population (Irbarren et al., 2018). It is known from the health promotion literature that just changing knowledge does not necessarily change behaviors. If the knowledge of the MSM and TGW communities about HIV prevention through decreased HRSB is increased, it is not clear that this knowledge will translate to decreased HRSB and decreased rates of HIV infection in the population. While we know from the literature that the LGBTQ population uses mobile technology for knowledge seeking and sex seeking behaviors, it is not known if the use of social media campaigns will be successful in decreasing high-risk behaviors and HIV rates of infection. Perhaps incorporating HIV prevention strategies and knowledge transfer within a mobile based application would change HRSB in the population.

### **Identification of the Problem**

Rates of HIV in the LGBTQ population and specifically the MSM and the TGW populations are higher than other populations and continue to increase. The use of social media is prevalent in the MSM and TGW populations. Many MSM and TGW feel marginalized in healthcare due to healthcare providers who are not culturally competent. As a result, many MSM and TGW turn to mobile technology in health seeking behaviors and knowledge acquisition rather than face perceived healthcare provider discriminatory practices. High risk sexual behavior is common in the MSM and TGW populations as they tend to rely on social media in sex seeking behaviors.

### **Significance of the Clinical Problem**

It is incumbent for nurse practitioners to educate members of the MSM and TGW populations on strategies to decrease HRSB for preventing HIV infection. There is an urgency

and importance for this project due to the high rates of HIV and STI's among individuals of the LGBTQ community specifically MSM and TGW. The LGBTQ community is underserved and have voiced concerns regarding discrimination from health care providers. The use of mobile technology is frequently utilized among MSM and TGW. Mobile technology is one way to transfer knowledge that may be familiar to this segment of the LGBTQ population and may limit potential discriminatory behaviors by healthcare providers. Safer sexual practices in this community can positively impact the transmission of HIV. Knowledge acquisition of the risks associated with HRSB and HIV infection may lead to changed behaviors. Dialog between provider and patient via mobile and internet technology may increase knowledge of HIV prevention that may lead to improved health care outcomes, a better understanding of patient needs, and more culturally competent care.

### **EBP Proposal Purpose**

The purpose of the proposal is to review the implementation of a mobile technology program (m-Health) among the LGBTQ community, specifically MSM and TGW. This proposal will implement an m-Health Program with hopes to improve HIV and STI prevention knowledge while decreasing high risk sexual behaviors and increasing provider/patient virtual interactions in the MSM and TGW communities. Based on the available evidence, a tailored m-Health program will be presented that provides HIV prevention information and safe sex practices to the MSM and TGW communities. The mobile technology program will be delivered using applications such as text messaging, social media, and personal email. The m-Health program can be accessed on smartphones, tablets, laptops, and desktop computers. All information shared will be

confidential for the protection of the participant through limited personal access and will not include specific personal health information.

### **PICOT Question**

This evidence-based practice proposal will examine the use of mobile technology, and seeks to answer the following PICOT question:

*Does the implementation of a mobile technology (m-Health) program for HIV prevention (I) among community dwelling MSM and TG women (P) increase knowledge of HIV and STI prevention strategies, decrease the numbers of high risk sexual behaviors and improve the number of healthcare provider interactions when compared to not implementing an m-Health program for HIV prevention (O) within the six months (T)?*

### **Summary**

Rates of HRSB and HIV in the MSM and TGW populations are high. The use of social media in the MSM and TGW communities also continues to intensify (Patel, Masyukova, Sutton, and Horvath, 2016) with many using social media to seek out sex that is often associated with HRSB and may lead to HIV infection. Many persons in the LGBTQ community feel discrimination in healthcare is common and choose to seek knowledge of healthcare through mobile technology rather than accessing a health care provider. It is important to review and update an understanding of associations between social media use, HIV knowledge, and HRSB (Patel et al., 2016). The use of mobile technology by health care providers may serve to increase knowledge within MSM and TGW regarding HIV prevention, reduction of HRSB, and increase patient/provider encounters. Many barriers to care are removed as face to face healthcare discrimination is limited. Chapter two will review the current literature on HIV infection in the

LGBTQ population, HRSB and sex seeking behaviors in the MSM and TGW populations, discriminatory practices by healthcare providers caring for the LGBTQ community, and the use of mobile technology for improved knowledge of HIV prevention and reduction of HRSB.

## **Chapter Two**

### **Synthesis of the Evidence**

Chapter two provides a review of the literature concerning the problem of HIV infection in men seeking sex with men (MSM) and transgender women (TGW) within the LGBTQ population. The review of literature will examine HIV infection, HRSB, and sex seeking behaviors in the MSM and TGW populations, discriminatory practices by healthcare providers caring for the LGBTQ community, and the use of mobile technology for improved knowledge of HIV prevention and reduction of HRSB. The review will also synthesize the literature to provide an evidence-based practice strategy for the improved knowledge of HIV prevention and reduced high risk sexual behaviors in the MSM and TGW populations.

### **Search Strategies**

CINAHL, MEDLINE, PubMed, and ScienceDirect were searched for English-language publications dated from 2015-2020. Articles and research studies using the keywords Transgender, Gay, homosexual, or men who have sex with men, HIV, HIV prevention, mHealth, phone applications, apps, smartphone, mobile phones, and cell phones were used to obtain evidence in the literature. The focus of the literature review was to identify current evidence-based practice (EBP) for the prevention of HIV in the LGBTQ population specifically MSM and TGW. A total of 85 articles were found using the search terms discussed and a total of 15 articles were included in the literature review. The 15 articles were chosen because they provided the best evidence to support the claim that utilizing mobile and internet-based technology is an

effective way to increase knowledge of HIV prevention strategies in the MSM and TGW population. Additionally, these 15 articles gave evidence to support the use of m-health interventions to improve patient/provider encounters as well as a decrease HRSB and HIV acquisition and transmission.

### **Matrix of Evidence**

In completing the literature review, a matrix of the evidence in support of an m-Health program for the prevention of HIV in MSM and TGW was completed. The matrix of evidence can be found in Appendix C.

### **Synthesis of the Evidence**

#### **Theme One: High rates of HIV among the LGBTQ community**

The literature is abundant with research studies using, cross-sectional research, quantitative research, qualitative research, and systematics reviews (Cao et al., 2018; Chiu et al., 2016; Czarny and Broaddus, 2017; Fields et al., 2020; Fletcher et al., 2019) The reviewed literature utilized interviews and surveys and found there is a high rate of HIV infection within the LGBTQ community, especially transgender women (TGW) and men who have sex with men (MSM). Cao et al. (2018), states that young men who have sex with men (YMSM) are disproportionately affected by sexually transmitted infections and HIV but are reluctant to obtain healthcare services. This group between ages 16 and 30 are at higher risk of HIV acquisition when compared to older MSM due to decreased power imbalances and relationships, more likely to be sexually active, and the report of substance use and higher rates of condomless sex. In 2014, the Centers for Disease Prevention and Control (CDC) provided evidence that HIV is



growing at an enormous rate among young MSM ages 13 to 24 years old when compared to other age groups. (Chiu et al., 2016).

Although gay, MSM and bisexual persons make up two percent of the US population, this community still accounts for 65% of the newly diagnosed HIV infections according to evidence gathered from 2013 (Czarny & Broaddus, 2017). African American MSM constitutes the highest number of HIV infections newly diagnosed in 2014 with 40% of those new cases among ages 13 to 34 years old (Chiu et al., 2016; Czarny et al., 2017). Fields et al. (2020), performed semi-structured in-depth qualitative interviews and found a reoccurring theme that states young black bisexual, gay, and other MSM (YBMSM) are disproportionately affected by HIV in the United States and continue to be at significant risk of contracting this infection. In 2016, 54% of YMSM ages 13 to 24 had an HIV diagnosis (Fields et al., 2020).

Another study conducted by Fletcher, Reback, Clark, and Holloway (2019), state that TGW experienced several cofactors for HIV transmission and acquisition, including discrimination, homelessness, substance use, and social marginalization when compared to lesbian, gay and bisexual persons (Fletcher et al., 2019). HIV infection among TGW is elevated relative to other adult populations in the US. The odds of being HIV-positive within this community are estimated to be over 34 times higher when compared with other US adult populations.

Hidalgo et al., (2015), states that annually in the United States one out of four new HIV infections occurs in youth age 13 to 24 years old. These infections are acquired among African American and Latino MSM and continue to rise. In this study, computer-assisted self-interviewing (CASI) was utilized to evaluate participants at three time points: baseline, six weeks

post-intervention, and 12 weeks post-intervention (Hidalgo et al., 2015). Participation in the MyPEEPS intervention made possible via CASI (a specific computer system), noted a decline in sexual activity encounters while influenced by drugs or alcohol and while nonsignificant, other immediate risk factors favor the intervention and suggested the ability to reduce HIV risk in MSM (Hidalgo et al., 2015).

YMSM are vulnerable to HIV infection as are ethnic and racial minorities. In 2017, the United States reported YMSM (young men who have sex with men) made up 93% of new HIV infection among MSM of color (Kuhns et al., 2020). Among YMSM of color, psychosocial factors such as violence through bullying, related feelings of isolation, partner, peer and family relationships as well as an increasing number of sexual partners, low rates of testing for HIV/STI, and low rates of condom use are contributing factors to the high rates of HIV infection in this population (Kuhns et al., 2020). At the time of sexual initiation, intervention among young sexual minority men is an important strategy to increase sexual health education, and skill building for the prevention of HIV (Kuhns et al., 2020).

In the United States, TGW and YMSM continue to experience high rates of new HIV infections (Patel et al., 2016). The use of social media and the Internet is high among this group however, most of the population is not reached by current technology prevention interventions (Patel et al., 2016). An updated understanding of the associations between social media access, engagement in HIV high risk behaviors, and how a tailored technology may deliver education and interventions to a vulnerable population of MSM and TGW to reduce HIV infection is needed (Patel et al., 2016).

**Theme Two:** High sexual risk behaviors and sex seeking behaviors using mobile apps

Choi, Wong, and Fong (2017) stated there are online dating and sex seeking trends related to the proliferation of mobile phones, internet access, and advances in mobile technology. The research states this access is making online dating and sex seeking behaviors more available and have become most popular among the LGBTQ populations, more specifically MSM and TGW (Choi et al., 2017). The study conducted suggests online sex seeking is associated with increased risk when compared to off-line sex seeking. This includes behaviors that result in a higher likelihood of having unprotected sex, multiple sex partners, and more likely to be diagnosed with sexually transmitted infections (STI) (Choi et al., 2017).

Evidence suggests that MSM who seek sexual partners using technology and social media tools have a greater likelihood of being previously diagnosed with STIs (Iribarren et al., 2018). This group has been known to have a greater number of sexual partners who are HIV positive and are more frequently engage in unprotected anal intercourse (UAI), two sexual acts that are HRSB, and may lead to STI's or HIV infection (Iribarren et al., 2018). Additionally, time spent seeking sexual partners online has been shown to correlate positively with increased unprotected anal intercourse (UAI) which places individuals at a higher risk of contraction of STI's (Iribarren et al., 2018).

Kuhns et al., (2020) state evidence suggests mobile health (m-Health), a term used for the practice of medicine and public health supported by mobile devices, based intervention approaches are particularly noticeable for technology-savvy youth as well as a promising method to increase outreach to high risk populations. m-Health may use mobile technology for the sharing of educational information, game-based learning, and digital media aimed at reducing HIV risk behavior (Kuhns et al., 2020). Evidence shows people who are seeking sex partners

online are an increased risk for HIV transmission and exposure through their risk behaviors (Niakan et al., 2017). Mobile-based technology providing HIV education programs through communication via the Internet and text messaging, online chatting, and social networking sites for HIV intervention provide common techniques to address several of the key barriers to good medication adherence. This is made possible by providing reminders for care and direct connection to health providers (Niakan et al., 2017).

Patel, Masyukova, Sutton, and Horvath (2016) state that urban YMSM who participated in their study accessed mobile devices and logged on multiple times a day to seek sex partners. Participants in the study also used social media to seek out sex partners in exchange for sex for drugs, and exchange of sex for money or clothes. The results from this study confirm prior studies that demonstrate the feasibility of using social media platforms to reach at risk MSM and TGW (Patel et al., 2016). Results of urban and national surveys indicate that MSM are more likely to utilize social media to seek romantic and sexual partners when compared to heterosexual individuals. Literature exists that specifically examines social media use and HIV risk behaviors among MSM and TGW (Patel et al., 2016). The high rate of access and use of social media and the Internet by this population identified in this study has proven social media and other technologies are an effective and efficient tool for reaching and engaging this population in health-related interventions. Findings support the use of social media as a tool specific for transgender and MSM in HIV prevention and treatment activities (Patel et al., 2016).

The use of drugs among vulnerable populations such as MSM and TGW increases the risk of contracting HIV (Shrestha, Karki, & Copenhaver, 2017). The adoption of mobile technology throughout the US has grown significantly over the past few decades. According to

the WHO, with this growth, there has been mounting interest in the use of mobile technologies for mHealth in healthcare (Shrestha et al., 2017). M-Health solutions have been shown to have a positive impact on appointment attendance, health promoting behaviors, and medication adherence within the MSM and TGW population. Additionally, the popularity and availability of m-Health applications and a reduction in the cost of mobile devices have created the potential for m-Health to add significant value to treatment services particularly within resource limited settings (Shrestha et al., 2017). Primary outcomes of recent studies on m-Health based approaches specific to HIV prevention include receipt of information about HIV risk reduction, assessment of HIV risk behaviors, and receipt of medication reminders (Shrestha et al., 2017).

Cao et al., (2018) conducted a study that included a survey that was developed using the Checklists for Reporting Results of Internet E-Surveys (CHERRIES). The CHERRIES survey was used for reporting the data that was found regarding the behaviors of MSM in physician findings. This study was conducted in April 2017 (Cao et al., 2018). The survey developed by Cao et al, (2018) survey measured demographic characteristics including age, level of education, annual income, occupation, current residence, and sexual orientation. The survey also includes a checklist of sexual behaviors such as condomless and anal intercourse and the number of sex partners within the last three months. In Cao et al., (2018), eligibility for participation in the research and completing the survey included men who were born biologically male, were between the ages of 16 and 30 years old, engaged in oral or anal sex with men, and had seen a physician in the last 24 months. The survey assessed visits with the physician for any reason. (Cao et al., 2018). Participants were asked, using yes or no responses, if they had searched for

STI information online within the last 24 months, if they had had STI testing including HIV, hepatitis B or C, current syphilis history and physician visiting behavior.

The survey by Cao et al, (2018), was found to be successful in obtaining information from the selected participants. Some of the focuses of the survey were online seeking behaviors as well as a willingness to use an MSM-friendly physician finding function within mobile applications (Cao et al., 2018). Almost all of the men who participated in the study (92.4%) reported being interested in using the MSM-friendly physician finding function and 92% of the 92.4% were willing to use this sort of function if placed within gay networking applications (Cao et al., 2018). Another focus in the study noted that 84.5% of the participants had searched for STI information online with 94.5% having used gay mobile apps and 35.5% having used generic social media (Cao et al., 2018). 94% of participants used gay mobile applications to seek out information on symptoms of sexually transmitted diseases including HIV (Cao et al., 2018). It is important to add that 65.2% of participants used gay mobile applications to search for sexual health services (Cao et al., 2018).

Cao et al., (2018) study examined the life health information seeking behavior in the relationship with off-line STI physician visits. The role of social media is an emerging source of sexual health information noted by most of the study participants. Participants use generic social media and gay apps to seek out health information which is consistent with prior surveys that have supported the utilization of social media as searching tools (Cao et al., 2018). When comparing obtaining information from clinics and other institutions evidence shows that online STI information seeking is preferable because it is a relatively anonymous and confidential, as well as convenient search process (Cao et al., 2018). Social media platforms encourage these

advantages with usability, adaptability, and customizability. Individuals can generate content and improve information quality through iterative, and repeated processes. Information shared by acquaintances and friends on social media compared with conventional sources appears to have a better influence on usage. Increasing the integration of social media into frequent communication habits, social media platforms present novel opportunities for dissemination of STI information (Cao et al., 2018).

Zou, and Fan (2017), state although MSM represents a small subset of the male population, they make up the newest HIV cases in the US. Men who have sex with men are using mobile applications to socialize within the community. Tens of millions of MSM globally are using Geosocial networking applications (GSN) gay apps to find sex partners and socialize. Gay apps running on smartphones and other gadgets with android, Windows, Apple, and Blackberry systems are free to install. Current advances in smartphones with GSN functions allow for global positioning systems to allow users to identify nearby users and simplify the identifying potential for romantic or sex partners (Zou & Fan, 2017). The same advances in technology may also provide a potential platform to identify and recruit MSM who are at risk for HIV/STI to implement HIV intervention strategies.

**Theme Three:** Discrimination and stigma related barriers to receiving HIV prevention intervention strategies

Within the LGBTQ population, particularly MSM and TGW, there are barriers to receipt of HIV prevention materials and HIV intervention strategies (Cao et al., 2018; Chiu et al., 2016; Garrett, Menacho & Young, 2017). Young MSM reports inadequate HIV and STI information delivery and are inadequately engaging in healthcare seeking. Only 36% of MSM with suspected

STI have sought treatment at clinics located in China. Stigma, which stems from providers discriminating against same sex practices and STI treatment for MSM, are experiences that YMSM encountered and that have led to inadequate healthcare for the knowledge and prevention of HIV and STI in the MSM population (Cao et al., 2018). Poor HIV related outcomes are linked to missed office visits which are also common in this group due to feelings of discrimination in care by the health care provider (Cao et al., 2018).

According to Fletcher et al., (2019) persons from the LGBT community, more frequently TGW, experience severe discrimination, and economic and social marginalization when compared to LGB individuals. Transgender women are most often forced outside the legal economy, have increase rates of drug and alcohol use, homelessness, and sex work (Fletcher et al., 2019). Young MSM may experience implied or overt social discrimination in ethnic or cultural communities, family systems, or other social institutions along with educational settings (Hidalgo et al., 2015). Experiences such as these leave a negative attitude regarding sexuality which can predict sexual risk behavior in this group (Hidalgo et al., 2015). School-based and family discrimination include violence, family rejection, peer victimization, and is also associated with homelessness which can precipitate various safety and health risk such as increased sexual risk behavior (Hidalgo et al., 2015).

Findings suggest the use of social media-based tools facilitates the recruitment of hard to reach and underrepresented populations by potentially reducing the stigma associated with traditional recruitment strategies (Iribarren et al., 2018). There is a high prevalence of stigma reported by high risk populations which have been well documented. Men having sex with men reported their preference for using the Internet to meet sexual partners when compared to clubs



and bars and seems to contribute to this preference to low levels of stigma associated with anonymous encounters via the Internet (Iribarren et al., 2018). Using Internet applications and other m-Health technology may encourage individuals who are wary of disclosing stigmatizing behaviors such as multiple sex partners, and condomless intercourse, and has enabled recruiters to use outreach more efficiently (Iribarren et al., 2018). Additionally, evidence states that online venues lend themselves to the recruitment of younger persons to be included in ongoing research. Internet applications such as Facebook have been shown to recruit significantly younger participants for things such as HIV vaccination trials (Iribarren et al., 2018).

**Theme Four:** Web and Internet use for delivery of HIV prevention health information

Several evidence-based technological interventions have established effectiveness in reducing HIV risk behavior among ethnically diverse samples of MSM. These interventions rely on group level internet approaches, as opposed to a community or individual approach, with narrow inclusion criteria usually administered in HIV testing sites, clinics, and other health venues that attract individuals with histories of sexual risk behavior (Hidalgo et al., 2015). Men who have sex with men and TGW are difficult to reach populations for research. Social media tools and other technologies have shown to be effective in overcoming certain barriers in accessing these groups and continue to be tested in ongoing studies exploring HIV home test kits used to reduce sexual behavior (Iribarren et al., 2018). Studies have also shown social media-based strategies resulted in the highest number of individuals who were screened for HIV (Iribarren et al., 2018). Furthermore, dating apps contribute to reaching large numbers of eligible participants in ongoing studies.

The advantages of mobile-based and web interventions include the possibility to disseminate constant delivery of HIV prevention interventions to an extensive community. Online programs such as chat room base education, online seeking information, and web-based therapeutic education can be used in this intervention process. Health system focused applications, health messaging, and population health focused applications have shown to be effective in HIV/Aids prevention and intervention strategies (Niakan et al., 2017). Mobile text messaging has been used as an intervention that significantly improved adherence to antiretroviral therapy. Additionally, the primary use of mobile technology such as talking and text messaging (SMS), has a growing proportion of users who are now using mobile devices that can access the Internet and web (Niakan et al., 2017). Evidence shows more opportunities for the application of mHealth strategies in the delivery of HIV intervention and prevention programs. Studies prove intervention and prevention programs are most effective when they include individually tailored, easily usable, and multi-functional adherence tools that are familiar to the patient and do not alert others (Niakan et al., 2017).

The HIV/AIDS disease prevention program within the web-based therapeutic education system (TES) is a proven prevention program for healthy and high-risk people as well as HIV-positive persons that are not diagnosed (Niakan et al., 2017). The vast databases are accessible via the Internet which can possess users for extensive information about various diseases. Further, the use of all information is helpful on awareness and prevention of disease. The World Health Organization (WHO) announced that sex is one of the most common ways to transmit HIV especially in developing countries (Niakan et al., 2017). Additionally, web-based applications can be used to reach MSM. The high popularity of web-based programs and

willingness to contribute to online HIV/STI prevention programs suggests the possibility of delivery of interventions for highly mobile and stigmatized populations (Niakan et al., 2017).

### **Synthesis of the Whole**

It has become apparent that a large percentage of American adults use some form of social media (Chiu et al., 2016). The use of the internet and social media have become immensely popular and has enabled technology platforms for the delivery of health information to consumers. The population of MSM and TGW are at particularly high risk for HIV infection due to their engagement in social media sex seeking HRSB and their fear of healthcare discrimination. Internet based and social media studies to date have concentrated on health behaviors and health related conditions. Several applications exist currently for enhancing communication with the targeted population (Chiu et al., 2016). The use of m-Health technology may aid in reducing the prevalence of HRSB and HIV in the MSM and TGW populations.

### **Proposed Clinical Change**

This evidence-based practice proposal includes the development of a mobile technology (m-Health) program that seeks to provide health education to the MSM and TGW communities on methods to prevent HIV infection and reduce HRSB while promoting healthcare provider interactions.

A convenience sample of participants will be recruited from the population of patients of Facility E as well as through self-enrollment of participants who access the program through flyers that will be disseminated throughout the community; some participants may choose to join the program as they have heard through the word of mouth of the opportunity. The coordinated

m-Health program will be developed and implemented through mobile health apps and internet platforms. The m-Health program will include multiple modalities for the distribution of HIV prevention, HRSB reduction, and improved numbers of contacts between healthcare providers and MSM and TGW. The m-Health Program for HIV Prevention will be implemented over a six-month time frame and will be measured by self-reported rates of HRSB, self-reported knowledge of HIV prevention, tracked provider-patient virtual interactions and rates of HIV and STI infections.

### Summary

Studies show how TGW and MSM face several issues in accessing health care due to discrimination and other factors. Evidence shows this population engages in high risk sexual behaviors using social media and other technological sources to seek relationships and sex. This activity amongst this group has shown it contributes to increased HIV risk. (Patel et al., 2016). Results of several studies indicate MSM and TGW are receptive to the internet, and or social media recruitment to receive HIV prevention strategies. The evidence also shows using technology platforms is a positive way to disseminate HIV prevention information and has also shown a decrease in high risk sexual behaviors such as online sex seeking. (Niakan et al., 2017).

## **Chapter Three**

### **Theoretical Framework**

Jean Watson's theory of human caring is the framework that was used to support this evidence-based practice proposal. Jean Watson's philosophy and science of caring speak to how nurses express care to their patients. It is Watson's thought that caring is vital to nursing practice and endorses health better than simple medical cure (Costello & Barron 2017). A holistic approach to health care is essential to the practice of caring in nursing. Jean Watson suggests compassion is a needed component of the care patients oblige and deserve. She describes compassion as the ability to bear witness to, suffer with, and hold dear within our hearts the sorrow and beauties of the world (Costello & Barron 2017). Caring which is displayed in nursing has existed in every community. A caring attitude is not conveyed from generation to generation, but it is transmitted by the philosophies of the nursing profession as an exclusive way of coping with its environment. According to the caring theory, caring can be demonstrated and performed by nurses, which promotes the growth of the patient, accepts a person for who he or she is, and sees what he or she may become (Costello & Barron 2017).

Jean Watson's theory is based on ten carative factors that include instilling faith and hope, forming humanistic-altruistic value systems, cultivating a sensitivity to self and others, developing a helping-trust relationship, promoting the expression of feeling, promoting teaching-learning, using problem-solving for decision-making, promoting a supportive environment, and allowing for existential-phenomenological forces in assisting with the ratification of human need. The first three shape the philosophical foundation for the science of caring, and the continuing seven come from that foundation (Costello & Barron, 2017). Within assisting with the

satisfaction of humans, the needs are placed in order. The lower biophysical needs order consists of ventilation, food, fluid, and elimination. The lower psychophysical needs are activity, inactivity, and sexuality. Psychosocial higher needs are affiliation, interpersonal-intrapersonal achievement, and self-actualization (Costello & Barron, 2017).

There are four major concepts in Watson's theory including health, nursing, human being, and environment/society. Human beings are defined as a valued person in and of him or herself to be, nurtured, respected, assisted, cared for, and understood. The philosophical view of a person is a fully useful integrated self. Humans are considered greater than and different from the sum of his or her parts. A person's health includes a high level of general mental, physical, and social function. A widespread adaptive preservation level of daily function in the absence of illnesses or the process of efforts will lead to an absence of illness. (Costello & Barron, 2017).

The nursing process, according to Watson, matches the scientific research process. The first step is an assessment which consists of observation, identification, review of the problem, and formation of a hypothesis. The nurse then establishes a plan of care and decides what the variables are, the data that is collected, and how the collection will be conducted. Next in the process are interventions that are established. Implementation sets goals that incorporate the collection of the data. The nurse then evaluates the situation, which is an examination of the data collected, the results of the intervention, and the interpretation of those results (Costello & Barron, 2017). The last step in this process is an evaluation conducted by the nurse and is an examination of the data, results of the intervention performed, and the interpretation of results. This may lead to an added hypothesis.

An advantage to Watson's science is the creation of a general framework for nursing that can be used in a variety of patient situations. This theory also incorporates the patient in the context of family, culture, and community. The patient is the focus of practice which is why nurse practitioners and other providers must be aware of the disadvantages transgender patients may endure. The caring theory provides providers with increased awareness and knowledge needed for compassionate, and transpersonal caring relationships that are necessary for quality care in the transgender community (Costello & Barron, 2017).

As healthcare professionals, the value of practicing healthy behaviors assists in teaching health behavior to patients. Watson's theory stresses the need for providers who are caring for transgender patients in HIV or primary care clinics to practice self-care. Understanding the culture in the transgender community significantly influences communication with patients, families, and support systems (Costello & Barron, 2017). Jean Watson believed that caring is a moral ideal. According to her theory patients should be cared for holistically. The patient's body is to be acknowledged as well as their mind and soul. Providers must encourage self-disclosure which will help the discovery and development of trusting relationships with patients. (McEwen & Willis, 2014).

Within this belief, expectations of Watson's model suggest that care can be efficiently demonstrated through interpersonal relationships, which can lead to more effective health promotion individually and within the family growth. This is a caring environment that is noted to be one that furthers the development of individual potential in allocating patients to actively take part in deciding the best actions for themselves (McEwin & Willis, 2014). Patients who are from the transgender community are discriminated against because of their lifestyle choices.

Moreover, the diagnosis of HIV is an additional stigma that is attached to them. Patients cannot simply heal as objects but must heal as individuals who are a part of their environment and community and the presence of moral, ethical, and scientific, practices are to be applied in their care (McEwin & Willis, 2014).

Relationships between the provider and the patients' health can promote harmony within the mind, soul, and body. The holistic perspective pursues the patient's sense of self-knowledge, self-healing, and respect. The caring theory highlights healthcare providers should aim to promote self-determination, self-control, and choice, which is often grounded in empowerment (McEwin & Willis, 2014). Caring is a concern as well as a moral impression in which nurse practitioners aspire to not only preserve human dignity but also improve and protect it. Empowering patients gives everyone a right to contribute or formulate their own goals for care and promoting health.

### **EBP Model**

The Advancing Research and Clinical Practice Through Close Collaboration model (ARCC model) is a model that focuses on evidence-based practice implementation and promotes sustainability at a systemwide level (Indra, 2018). The ARCC model consists of five steps that start with an assessment of the organization's culture and readiness to implement the change within the healthcare system, identification of barriers and strengths of the evidence-based practice (EBP) process within the organization, identification of a champion to facilitate the development of skills and knowledge of the EBP, implementing the evidence into organizational practice and evaluating the outcomes after implementing the change in practice (Indra, 2018).



The ARCC model has been utilized in community and hospital settings and has been tested as a strategy for improving practice outcomes (Indra, 2018). There is an emphasis placed on identifying the organization's strengths and barriers to EBP and identification of mentors or champions to work directly with staff which contributes to an organizational culture that supports the EBP. It is most important to know that decision-making at the point of care includes clinician expertise and patient preference (Indra, 2018).

### **Application of Framework to EBP Proposal**

As the writer seeks to implement change, the ARCC model of EBP will be applied. Application of the ARCC model begins with assessing the organization's culture and readiness for implementation via meetings with department heads, leaders, and decision-makers as well as all appropriate staff (Indra, 2018). Assessment of the organization includes an assessment of the clinical problem of HIV infection in the MSM and TGW populations. Assessment will include an evaluation of the larger population of LGBTQ persons who may benefit from the m-Health program as well. An evaluation of what the organization deems the problem areas are in the community regarding HIV prevention strategies and how that information is distributed to high risk individuals will be completed. It will be important to know if the high-risk populations of MSM and TGW are regularly being seen by healthcare providers and if they are not, why.

Strengths and barriers to implementation of the m-Health Program for HIV Prevention will be explored. It will be important to maintain the privacy of the participants and their health information and as such, will be necessary to assess the information technology infrastructure of the facility. The implementation of the m-Health Program for HIV Prevention will require a nurse practitioner to implement and sustain the change. It will be necessary to identify if persons

within the organization have knowledge or experience with m-Health program implementation and m-Health platforms (Indra, 2018). The ARCC suggests a mentor or champion be identified within the organizational structure (Indra, 2018). The writer will be the spearhead and the consulting individual to bring the program to the facility. The writer will then identify a champion within the healthcare setting to implement, maintain, and sustain the intervention over time.

The m-Health Program for HIV Prevention will use many different forms of technology to disseminate HIV prevention information. Specific m-Health applications may include strategies such as informational text messages weekly or biweekly that contain facts such as appropriate use of condoms, identification of free HIV testing sites, practicing MSM-friendly physicians or nurse practitioners accepting appointments and any other information regarding ways to decrease acquisition and transmission HIV.

The final stages of the ARCC program include an evaluation. Programs must be evaluated against intended outcomes that resulted from the practice change (Indra, 2018).

Measured outcomes of the m-Health Program for HIV Prevention include:

- Rates of HIV infection
- Rates of STI
- Rates of HRSB
- Rates of virtual interactions with healthcare providers
- Knowledge of HIV and STI prevention strategies

The use of the online survey entitled HIV Risk Survey will be used to assess program outcomes in the population of TGW and MSM who engage in the m-Health for HIV Prevention.

### **Congruence of Framework to EBP Proposal**

The ARCC model for EBP implementation was chosen because it focuses on strategies to implement a clinical change using the five steps of the ARCC model. Previous literature has supported the use of the ARCC model to stimulate clinical change in various organizations (Levin et al., 2011). A pilot study was conducted and implemented using the ARCC model with nurses employed in the community and home health setting for testing belief in EBP. After didactic content, posters, a mentor, and an EBP toolkit was received by the experimental group, the mentored group had a significant improvement in EBP beliefs, as well as the increased implementation of EBP (Indra, 2018). Skills have been developed based on this model for assessment of organizational culture and its ability to measure the effectiveness of the EBP and practice. Identification of the organization's culture and readiness for change is the first step to introducing a clinical change. The ARCC model focuses on EBP implementation and can sustain the implementation and a systemwide level (Indra, 2018).

### **Setting**

The introduction and implementation of the m-Health Program for HIV Prevention will be at Facility E that is in Erie County, specifically Buffalo, NY. Facility E is situated within the LGBTQ community where MSM and TGW individuals reside. Facility E provides services such as primary care, behavioral health, and other supportive services to the surrounding community, specifically the LGBTQ community. The primary care services at Facility E include medical and preventive services. Specialty services such as HIV prevention, treatment, and care as well as LGBTQ health and transgender specialty care are offered as well. Facility E offers HIV testing, treatment, and preventative HIV medication such as PrEP also known as Truvada. Along with

HIV programs, Hepatitis C care and pharmacy services are also offered at this location. Current HIV prevention education provided at Facility E includes a health education and engagement program to make good decisions about health. Additionally, Facility E offers free HIV/STI testing, free condoms for prevention of disease, and individualized health regimens to lower viral loads of persons who have already contracted HIV. Facility-E is the lead provider for the HIV prevention drug pre-exposure prophylaxis (PrEP). They also offer education on safer drug practices by needle exchange programs which can further reduce contraction of diseases such as HIV which can not only be transmitted through sex but intravenous drug use.

### **System Focus**

#### **Micro/Macro Focus –**

When considering the implementation of an m-Health Program for HIV Prevention, one must consider both the microsystem and macrosystem impacts. The implementation of an m-Health Program for HIV Prevention requires a redistribution of staff work responsibilities. Changes will have to be made within the clinic staff as the m-Health program is developed, implemented, and sustained. This m-Health Program for HIV Prevention is designed to be initiated by a nurse practitioner as the champion for the program. Redistribution of the NP time and responsibilities to implement and sustain the m-Health program will certainly reduce available hours for patient encounters. The reduction in numbers of patient encounters for the NP will impact the organization as the NP will be less available for patient visits, follow up phone calls with patients, and reduced availability for collaboration with other professionals regarding patient care and treatment.

Just as the microsystem of the practice may be impacted by the m-Health Program for HIV Prevention, the macrosystem of the entire Facility E and the community of LGBT persons will be impacted. Implementing the m-Health Program for HIV Prevention is a change that will result in an overall reduction in billable office visits at least initially by the NP who is championing the change. A reduction in NP billable visits will negatively impact the finances of the facility. It is also possible that the NP who is implementing the change may be less satisfied with their work as they are engaged in less direct patient contact. Overall reductions in job satisfaction may lead to negative work environments for the entire office. Positively, the success of the m-Health Program for HIV Prevention may increase the health of the LGBT population in the surrounding community to the physical location of the practice. The program may also begin to reduce health disparities in this group as the participants are more readily confidentially linked to healthcare providers.

In viewing the bigger picture or contextual factors by implementing the m-Health Program for HIV Prevention, there may be an impact on the healthcare system and community over time. Health literacy of the population may be improved as participants are engaged in learning methods of HIV prevention and safe sex. There is a possibility to see a decrease in high risk sexual behaviors (HRSB) among the MSM, and TGW population within Erie County. There may be a smaller number of new HIV cases noted within this population. Additionally, these changes, if implemented in several practices across the healthcare system may reach saturation of information on HIV prevention strategies and a noted decrease of HRSB. This would demonstrate that mobile/Internet technologies have a significant impact on dissemination, and

acceptance of HIV prevention strategies within the MSM and TGW community overall and larger scale implementation may be considered.

### **Summary**

Evidence-based practice is the paradigm and lifelong problem-solving approach to decision-making that involves the use of the best available evidence (Indra, 2018). An overwhelming amount of evidence states that the LGBTQ community, specifically MSM and TGW populations, have a higher incidence of HIV infection (Patel et al., 2016). This population also has high rates of use and access to social media and the Internet. Social media proves to be effective and efficient for engaging this population in health-related interventions (Patel et al., 2016). Behavioral interventions leveraging online social networks have the potential to promote population health dramatically and the capacity to disseminate information virtually while modifying norms and facilitating social support. EBP is used to improve outcomes for communities, individual groups, and systems and should be guided by research evidence in conjunction with clinical expertise and patient values (Indra, 2018). Chapter four will discuss the logistics of implementation of an m-Health Program for HIV Prevention at Facility E.

## **Chapter Four**

### **Proposed Clinical Change**

This evidence-based practice proposal includes the development of a mobile technology (m-Health) program that seeks to provide health education to the MSM and TGW communities on methods to prevent HIV infection and reduce high risk sexual behaviors (HRSB). The program also looks to improve patient/provider encounters. The proposed clinical change of the development of an m-Health program for the Prevention of HIV among MSM and TGW will be administered over 18 weeks. The program will consist of four different modules:

- Module 1: HIV prevention strategies (consistent and appropriate condom use, use of PrEP)
- Module 2: Reduction of high-risk sexual behaviors (limiting sexual partners, online sex seeking behaviors)
- Module 3: Free testing and frequency testing for STI/HIV, and other community resources (testing every 3 months for high risk populations, testing sites offering free STI/HIV testing, crisis services locations, food pantry locations).
- Module 4: MSM and TGW friendly nurse practitioners/providers accepting new patients (provider list, ways to prevent discrimination in healthcare, understanding patient rights).

Information for each module will be created using current evidence and then developed and distributed by a nurse practitioner at Facility E via various platforms including text messages, emails, and a social media group that will be created. The program will also include an HIV Risk Survey before and after completion of the program to measure the outcomes of the

program. Additionally, there will be an assessment via a questionnaire that will test knowledge of content before and after each module.

### **Description of Proposed Clinical Change**

The m-Health Program for the Prevention of HIV in MSM and TGW will be developed by the writer and packaged for delivery to Facility E. Participants in the program will be those who are current or prospective members of the practice, greater than 18 years of age, MSM or TGW, and willing to use social media for HIV prevention information. A convenience sample of participants will be recruited via flyers posted in the community as well as a recruitment letter that will be sent by the medical secretary of Facility E to all persons obtaining care or registered at Facility E in some capacity as this practice specializes in the care of the LGBTQ community. The recruitment letter/flyer (see Appendix A) will explain the m-Health Program for HIV Prevention in MSM and TGW, and a link to the survey is provided that will direct the participant to a private Google site where additional information will be housed. The Google site will contain access to a social media page created on Facebook that participants may personally choose to join. The Facebook private group will offer participants the ability to provide their personal email and phone number for text messaging and email communication.

The Google site will also link participants to the HIV Risk Survey and will ask participants to complete the survey as an entry into the m-Health Program for HIV Prevention in MSM and TGW. The pre-enrollment HIV Risk Survey consists of 13 modified questions for this EBP proposal from the survey created by Cao et al., (2018). There will be a pre survey as well as a post survey. The post survey will consist of eight questions that will include a question on patient/provider in person encounters as well as any virtual encounters such as zoom, direct



messages, email or text messages since the completion of the pre survey and completion of the modules. The HIV Risk Survey includes the following items (see Appendix B)

- Demographics - age, level of education, current residence occupation, and annual income.
- Sexual orientation - inclusion criteria for the program includes participants who are MSM or TGW
- Sexual Practices - participation in online sex seeking within the last three months; the number of sexual partners within the last three months; and the number of condomless sexual encounters in the last three months including anal, oral, or both encounters.
- Health seeking behaviors - have participants visited a healthcare provider within the last 12 months; have participants had any STI/HIV testing in the last three months; have participants sought STI/HIV prevention information online, and what are the best ways to use mobile or technology platforms to obtain STI/HIV information?

The 18-week modular m-Health Program for HIV Prevention in MSM and TGW content will be developed by the writer and delivered to Facility E. A champion at the site, an NP will be identified to implement and sustain the program within Facility E. Each module will be launched every other week by the NP on the Google site. The information for each module will be presented later in this chapter along with the platforms for the delivery of various aspects of each module.

Outcomes for the program will be assessed by the writer and include:

- Increased knowledge of HIV prevention strategies
- Increased knowledge of STI prevention strategies
- Reduction in HRSB
- Increased number of healthcare provider interactions (virtual or in person visits)

### **Role of Stakeholders**

Stakeholder engagement is important for success with the EBP. Stakeholders include the patients, nurse's practitioner, facility administrator, social work, and staff such as the IT department and medical secretary. These are all persons who would be positively affected by the implementation of the m-Health Program for HIV Prevention. In this proposal, the stakeholders include:

*Facility E Administration* – Administrators are crucial to the success of an m-Health program at a healthcare facility, their permission and support will be needed to implement the change. They can provide the financial backing provided in the budget to implement changes and stand to gain the return on the investment if the program increases revenue. The role of the Facility E Administration includes granting permission to conduct the program, approving the budget which includes finances for utilization of the NP who will implement and sustain the m-Health Program for HIV Prevention at the site. Administration may be able to contact others in the medical field as well as insurance companies to identify more willing participants for the survey. Implementation of this program may build better relationships between the community and the facility staff and assist in increasing business for the practice.

*Nurse Practitioner staff of Facility E* – The nurse practitioner (NP) would be a stakeholder in helping to champion an m-health program at their place of employment. First, the

nurse practitioner will increase his or her knowledge of HIV and how to care for persons from the LGBTQ population. Increased knowledge will make the NP more marketable in the LGBTQ community specifically, MSM and TGW, and better equipped to provide care. The NP will also gain experience in implementing a virtual program to improve the health outcomes of patients. Patient utilization of the nurse practitioner further proves the nurse practitioner is a needed profession within this community. With heightened awareness among staff and patients regarding sexual risk, patients may have a decrease in HIV acquisition and transmission which is the overall goal of the program. Hopefully, this insight will facilitate increased HIV knowledge in the LGBTQ community and decrease the disproportionate rates of HIV acquisition and transmission of HIV among them. Facility-E currently caters to the LGBTQ community, but this program can add resources for MSM and TGW. If the program has a successful outcome in increasing knowledge of HIV/STI prevention, STI/HIV testing, and decreasing high risk sexual behaviors among this group, the program may become the norm in caring for this population at this facility and others. This will allow providers to feel more confident in communicating with this population in other settings.

*Staff* - Stakeholders also include other staff members such as medical secretaries and members of the informational technology department (IT). The medical secretary can assist in many ways with the m-Health program because part of their job is to have constant interaction with patients. The medical secretary has access to patient records and contact information making it easier to send recruitment letters to those who did not view the flyer in the community. Further, they will be able to set up appointments for participants with providers through the programs as well as after module four. This will also assist the writer with data collection.

The IT department will contribute to the project by assisting the writer in the development of the Google site and making it accessible to all participants, NP, and medical secretaries as needed. The writer will be able to evaluate the surveys and the NP will access the pre and post module quiz. The IT department is useful in implementing ways for the writer, NP, medical secretary, social work, and other medical personnel to communicate with each other as needed by enabling Skype and Tiger text capabilities. IT staff will make the Google site and ensure all the material for the program is user friendly for participants and staff. IT will make sure the NP can answer any questions participants have and offer ways to keep questions and answers private if they choose. The IT department makes this option possible with their knowledge of computer software which may increase patient satisfaction while participating in the m-Health program.

Confidentiality plays an important role in the m-Health program. The IT department will ensure this is kept with the use of the patient's four-digit code that will be chosen by the participant before the pre survey, and any encryption needed for privacy. The IT department will work closely with the writer, NP, and the medical secretary on the best ways to get information out timely and safely to make the m-Health program a success at Facility-E.

*Patients (including MSM and TGW)* - Patients become stakeholders in any program or intervention that will help improve healthcare outcomes and improve the patient quality of life. The patients may benefit from a program like this because the program may improve ways to educate the population on HIV prevention, reduce high risk sexual behaviors, and strengthen relationships between MSM and TGW and providers.

*Social Worker-* Social work is a useful and helpful part of the interdisciplinary team in that they can provide assessment, identification, and explanation of treatment options or resources for mental hygiene needs. Social services can help individuals with any family dynamics they may be facing. Educating patients and families on health insurance coverage, and or entitlements, counseling, and any housing issues faced by participants is also part of social workers' expertise. This assistance by social work may encourage participants to take their health seriously and sway individuals from HRSB.

### **Step by Step Description**

The ARCC model of EBP will frame the implementation of the m-Health Program for HIV Prevention in MSM and TGW. The steps of the ARCC model are outlined with implementation strategies.

**Step 1: Assessing organizational culture and readiness for EBP change:** The writer will contact Facility E to set up an appointment with the administration to discuss and describe the program as well as the involvement of Facility E in implementing this EBP proposal. The medical secretary at the facility will be asked to distribute a flyer and or a recruitment letter inviting potential participants to the program. The flyer and recruitment letter will contain information about the program and will be sent to all patients currently being seen by the healthcare team at Facility E.

After the discussion with administration and approval is given to implement the EBP proposal, a meeting will be held with all stakeholders at Facility E to assess their willingness and readiness for change. The content of this meeting will seek to identify the depth of the issue of HIV in the community, identify the perceptions of the stakeholders of how they can assist in

addressing the problems and will identify the stakeholder's perceptions of how they can be involved in solving the identified perceived problems. The meeting with the stakeholders will also seek to identify what education is currently provided at Facility E and what the stakeholders believe could be beneficial to prevent the spread of HIV while increasing the knowledge of the population regarding HIV and STI prevention.

Meetings will also be held with representatives in the LGBTQ+ community to identify levels of trust and perceived needs of the community. Discussions with community leaders will open up a dialogue between the practice and current patients or prospective patients to ascertain what the perceived issues in the community are. There may also be an opportunity to identify barriers in seeking primary care and address other health concerns.

**Step 2: Identification of strengths and barriers to EBP change.** Identification of strengths and barriers will be discussed with the stakeholders at Facility E and identified in step 1. Strengths identified include a Facebook (FB) page already in place at Facility-E. The FB page includes posts that include things such as career opportunities, hours of service, and information of a care coordination team that provides links to support services for crisis services, or resources for emotional support. The care coordination team may partner with social work and offer ideas to include in the m-Health program. There is also a post on medication adherence as well as food pantry access. There is a harm reduction mobile unit that will be an asset to the goal of the m-Health program as this is a contributory factor in ways to reduce HRSB as well as strategies for HIV prevention. Another strength of the program includes the participants' ability to access useful information from the comfort of their home which may open dialog between patients and

providers and allow participants to feel comfortable being open and honest about sexual practices.

Barriers may include staff having a non-desire to participate in the program or the clinical staff may not view HIV as a large problem in the community of interest. Because of the location of Facility E, there could be language barriers as Facility E is in a Hispanic and African ancestry area of Buffalo, NY. Some of the population may not speak English as their primary language. There may be a need for translation phones and or an individual to translate information provided in the program

LGBTQ members have expressed a lack of trust in healthcare providers due to previous negative experiences, negative judgment, or perceived discrimination. Facility- E offers education on ways to improve judgmental care to health care providers which may be underutilized presently. Step 1 will identify this and look for ways to encourage providers to participate in this education which in turn may help in increasing patient/provider encounters at Facility-E overall.

**Step 3: Development and use of EBP mentors:** Once the setting administrator approves the implementation of the m-Health Program for the Prevention of HIV in MSM and TGW, the administrator will be integral to the overall success of the program. With administration permission, the medical secretary will assist with recruiting participants to the m-Health program through the distribution of a recruitment letter, and or flyers. The administrator and their leadership will drive the change at the site. The administrator will initiate the initial approval for the project, will coordinate meetings with the stakeholders and the writer, and will be the final

decision maker on the utilization of staff in this project and the evaluation and continuation of the project.

The identified NP at the site will become the champion for the implementation of the project and will be needed throughout the length of the program to ensure launch, sustainability, and evaluation of the program. The NP will coordinate tasks with the writer who will oversee the project development, implementation, and sustainability. The NP and the writer will serve as the daily contact person for questions that arise or to communicate with participants as needed.

Information technology (IT) resources and assistance are needed for the implementation of the m-Health Program for the Prevention of HIV in MSM and TGW. The IT staff will be called upon to assist with securing electronic resources such as computers for creation and maintenance of a social media group, the use of apps for text messaging and emails as well as secure but private direct messaging. The program requires the creation and maintenance of a Google site as well as Google surveys, all items requiring IT support.

The writer will develop and deliver the 4-module education program content for the m-Health Program for the Prevention of HIV in MSM and TGW to the NP at the site who will implement the educational program. The writer will be responsible for supplying all the needed material for the implementation of the project and instruction of the staff.

**Step 4: EBP implementation:** Implementation of the m-Health Program for HIV Prevention in MSM and TGW will be developed by the writer and actualized by the NP on-site at Facility E. Initial implementation of the program begins with the writer meeting with the administrator of Facility E to describe the m-Health program and ask for administrator approval for



implementation of the project. Following administrative approval, the writer will seek IRB approval for the project from the college associated with the EBP project.

Once all approvals are in place, the writer will meet with the staff outlined in Steps 1 and 2 of the ARCC Model for EBP to identify support and readiness for change as well as strengths and barriers to the project implementation. The writer will then educate the staff at Facility E regarding the content and implementation of the m-Health Program for HIV Prevention in MSM and TGW. The writer will identify and train mentors to the EBP implementation team.

Electronic resources will be created by the writer with the support of the IT staff at Facility E. First to be created will be a Google site. The Google site will be the launching platform for the m-Health Program for HIV Prevention in MSM and TGW. The Google site will house the link to a private Facebook group, known as "Get Informed" as well as a link to the HIV risk survey that will be created in Google surveys. Passwords as well as administrative approvals and privileges for the Google site, Facebook page(s), and the HIV Risk Survey will be created and maintained by the writer with the assistance of the IT staff of Facility E.

The creation of a Facebook page/group will be completed by the writer in collaboration with the IT staff of Facility E. The Facebook page will be named "Get Informed" and will be a public group. Persons will self-select to join the group by their own personal Facebook accounts. The location of the "Get Informed" page will be in Buffalo, NY as Facility E is in said city. Privacy settings for the group will be set to "public" to allow individuals to view the page with or without joining the group. This will enable this Facebook group to be searched which is effective for the discoverability of the group but only members can see who is in the group, post

questions, and see posts from other members in the group, which will help maintain the confidentiality of the participants.

The NP at Facility E, the IT manager at Facility E, and the writer will maintain administrative rights to the "Get Informed" Facebook group page. Links to the Facebook page will be made available by the NP throughout the program to allow for joining the group at any time with administrative approval for the same. An identifying photo will be added to the "Get Informed" Facebook page that will feature persons all different ethnic groups and cultures and a description will be added to the bottom of the photo that will invite all persons to participate in the Facebook group without fear of discrimination.

The Google site for the m-Health Program for HIV Prevention in MSM and TGW will be established by the writer with the assistance of the IT staff at Facility E. The Google site technical status will be maintained by the IT staff at Facility E. Content additions to the Google site will be made by the NP at Facility E and/or the writer. The Google site will offer a link to the "Get Informed" Facebook group, an offer to provide a private text messaging number for HIV prevention education, and offer to provide a private email address for HIV prevention information delivery, access to the HIV Risk Survey and the 4 educational modules of the m-Health Program for HIV Prevention in MSM and TGW.

Recruitment into the m-Health program will begin with a letter mailed by the medical secretary to all current patients in the practice. Simultaneously, flyers will be posted in the surrounding community to Facility E seeking participants for the program. The letters and the flyers will contain a link to the Google site for the m-Health Program for HIV Prevention in MSM and TGW as well as the "Get Informed" Facebook group that will also contain the link to

the Google site. It is possible that through word of mouth or electronic searches, others may find the “Get Informed” Facebook group and may choose to join the m-Health Program for HIV Prevention in MSM and TGW.

Eligibility for those choosing to participate in the m-Health Program for HIV Prevention in MSM and TGW includes the following: age greater than 18 years, identify as a MSM or TGW, willing to use social media for HIV prevention education, and either a current patient of Facility E or a member of the surrounding community of LGBTQ+ persons. Persons will self-enroll in the m-Health program through the completion of the initial HIV Risk Survey.

The writer will meet with the IT department manager to assist with the creation and launch of the HIV risk survey from the Google site and the “Get Informed” Facebook page. The writer will create the HIV Risk Survey in Google surveys and will coordinate with the Facility E IT staff to ensure the surveys are launched properly as anonymous surveys. Access to the initial HIV Risk Survey will be through the Google site, “Get Informed” Facebook group, and through a text or email link if participants choose this desired delivery method from the Google site or Facebook page. Although the participant must complete the HIV Risk Survey to be included in the outcomes measures for the program, participants will not be asked for their name and will identify their survey responses only by the use of a unique identifier of the last 4 numbers of the participant's social security number. This number is known only to the participant and no links to the participant and their name or social security number or email or phone numbers will be made.

## Implementation of the m-Health Program for HIV Prevention in MSM and TGW

educational modules will be on the Google site and will be completed by the NP at Facility E

according to the schedule outlined for each module. Content for each module is included below:

Module #	Content	Email	Text	Facebook Post	Google Site Module
1 - launch week 8 of the program	<p>HIV prevention strategies</p> <ul style="list-style-type: none"> <li>• Modes of transmission of HIV infection i.e. anal, vaginal, oral, sex as well as needle sharing during drug use</li> <li>• Consistent and correct use of condoms</li> <li>• How to properly put on condoms for male and female sexual encounters</li> <li>• Information on the qualifications and usage of PrEP and how this differs from the use of PEP</li> <li>• Disclosure of HIV status prior to sexual encounters</li> <li>• Monogamous relationship conversations among persons prior to sexual encounters</li> </ul>	On first day of Week 8 - Email link to those who choose email communication with link to Google site and summary of Module 1 inviting participants to participate	On first day of Week 8 - Text link to those who choose email communication with link to Google site and summary of Module 1 inviting participants to participate	On first day of week 8 - post the link to Google site and summary of Module 1 inviting participants to participate	Post an announcement on the Google site that Module 1 is now available and should be completed at their own pace.

2 - Launch Week 10 of the program	<p>How to decrease HRSB</p> <ul style="list-style-type: none"> <li>● Refrain from online sex seeking</li> <li>● Reduce number of sexual partners</li> <li>● Refrain from excessive alcohol or illicit drug use prior to sexual encounters</li> <li>● Use of condoms from start to finish of any sexual encounter</li> <li>● Refrain from exchange of sex for money situations</li> </ul>	On first day of Week 10 - Email link to those who choose email communication with link to Google site and summary of Module 2 inviting participants to participate	On first day of Week 10 - Text link to those who choose email communication with link to Google site and summary of Module 2 inviting participants to participate	On first day of week 10 - post the link to Google site and summary of Module 2 inviting participants to participate	Post an announcement on the Google site that Module 2 is now available and should be completed at their own pace.
3 - Launch week 12 of the program	<p>Information of free testing sites and recommended frequency of testing information. Locations and hours of operation will also be provided.</p> <ul style="list-style-type: none"> <li>● Contact for 24 hr crisis services</li> <li>● Contact for social work services i.e community resources, food pantry, housing ect.</li> </ul>	On first day of Week - 12 Email link to those who choose email communication with link to Google site and summary of Module 3 inviting participants to participate	On first day of Week 12 - Text link to those who choose email communication with link to Google site and summary of Module 3 inviting participants to participate	On first day of week 12 - post the link to Google site and summary of Module 3 inviting participants to participate	Post an announcement on the Google site that Module 3 is now available and should be completed at their own pace.
4 - Launch week 14	List of MSM and TGW-friendly nurse practitioners and	On first day of Week - 14 Email	On first day of Week 14 - Text link	On first day of week 14 - post the link	Post an announcement on the

of the program	<p>physicians accepting new patients will be provided. Locations and phone numbers will also be given.</p> <ul style="list-style-type: none"> <li>• Information on where to go for transgender centered care</li> <li>• Knowing your rights regarding medical insurance coverage</li> <li>• Knowing what an MSM, TGW friendly health care setting looks like, i.e posters, greetings from medical staff at the clinic</li> <li>• Question the education provided to providers on caring for persons that identify as MSM and or TGW</li> </ul>	link to those who choose email communication with link to Google site and summary of Module 3 inviting participants to participate	to those who choose email communication with link to Google site and summary of Module 3 inviting participants to participate	to Google site and summary of Module 3 inviting participants to participate	Google site that Module 4 is now available and should be completed at their own pace.
----------------	--	--	---	---	---

As content is launched every other week, the NP will be responsible to initiate communications via text messaging, email and/or Facebook posts that will alert the participants to new modular information being available. Additionally, the NP will monitor the social media sites and posts to respond to questions, moderate posts, add relevant information and content to the pages as questions or topics arise. The monitoring of the sites will be done daily by the NP.

Pre and post each module there will be a quiz that will evaluate current knowledge and knowledge obtained after the module is presented.

As the educational program is ending, the NP will be responsible for launching the HIV Risk Survey again at the end of the program. Outcome evaluation includes an assessment of the completed HIV Risk Survey pre and post as well as the pre and post knowledge quiz with every module. The HIV Risk Survey will be accessed through the Google survey platform. The HIV Risk Survey will be completed by the participants at the launch of the program and again after the program for comparative purposes. Participants will access the HIV Risk Survey before the program by selecting the link that the NP will post on the flyer and/or from the recruitment letter that will link participants to the Google site. The Google site will link participants to the “Get Informed” Facebook group where the link to the HIV Risk Survey will also be available. The link to the HIV Risk Survey will also be sent via the preferred method of text or email indicated by each participant at the outset of the program. Participants will be asked to complete the second HIV Risk Survey using the same four-digit pin (last 4 digits of the participant social security number) that was chosen pre survey by the participant.

**Step 5: Outcome evaluation:** The expected outcomes of the m-Health Program for HIV Prevention in MSM and TGW are to increase knowledge of HIV and STI prevention strategies, decrease the numbers of high risk sexual behaviors and improve the number of healthcare provider interactions. The outcome evaluation of the program will substantiate the need for this project to be implemented and sustained in this population. Measures of each of the desired outcomes of the program will be collected and analyzed using the HIV Risk Survey and the knowledge questionnaires associated with each educational module. The HIV Risk Survey will

offer comparative change data from the beginning to end of the program in the areas of knowledge of HIV and STI prevention strategies, changes in the number of HRSBs, and changes in the number of healthcare provider interactions.

**Desired Outcomes:** The desired outcomes of the m-Health Program for HIV Prevention in MSM and TGW include those outcomes that are not directly measured by the HIV Risk Survey but that are desired outcomes for Facility E.

While the overall goal of the m-Health Program for HIV Prevention in MSM and TGW is to prevent HIV, these modules may also promote more frequent HIV testing amongst the LGBTQ+ community as knowledge and awareness are increased. Increased frequent HIV testing may reduce healthcare costs overall as Facility E can implement earlier and more effective treatment strategies to reduce comorbid disease amid at HIV positive persons.

The effectiveness of the program from the administration perspective may increase patient census for primary care. The popularity of the facility may increase because of improved numbers and quality of interactions with healthcare providers who are involved in the m-Health program. The increased popularity of the practice may result in increased visits to the facility for prevention and treatments which may increase patient visit revenue.

Utilization of the m-Health program at this practice may allow the administration to promote m-Health in other practices. Expansion of the m-Health program for HIV Prevention may include other HIV programs or other chronic disease programs. Expansion of programs or expansion of the number of site offerings may increase revenue to Facility E.

Gathering of information with the HIV Risk Survey will assist the stakeholders of Facility E with increasing their level of understanding regarding the HIV needs, and risk in this



population. The HIV Risk Survey will also help in identifying the gaps in knowledge of HIV acquisition and transmission among this population as well as where HIV risk is least and greatest. Changes to the program content may occur based on the HIV Risk Survey results, participant feedback on the Facebook page, anecdotal comments made in Facebook posts, or gathered from the HIV Risk Survey as well as the writer and NP, and participants' input.

Furthermore, stakeholders of the project may be encouraged to seriously consider the benefits of an m-Health intervention for health. The m-Health intervention may also assist in other disease prevention or health care practices. This EBP proposal may identify various forms of mobile technology that may be useful in a variety of settings. Incorporation of up to date strategies such as m-Health to reach patients in different populations may improve the overall quality of care and patient satisfaction over time.

### **Data Analysis Plan**

The m-Health Program for HIV Prevention in MSM and TGW has the following intended outcomes:

1. increase knowledge of HIV prevention strategies
2. increase knowledge of STI prevention strategies
3. decrease the numbers of high-risk sexual behaviors
4. improve the number of healthcare provider interactions

Measuring the outcomes of the program will include the following data and analysis methods.

#### **Increase knowledge of HIV prevention strategies**

Knowledge changes for HIV prevention strategies will be measured using the pre-test and post-test data of the knowledge questionnaires before and after each of the educational modules #

1-4. A statistical t-Test will be used to test for significant differences between knowledge pre-HIV risk-survey and knowledge obtained after modules reflected by the post HIV risk survey. Means will be computed for both surveys and will involve the results from both surveys divided by the number of surveys. The numerator of the t-Tests will be computed as well as the standard error of the difference. Variances from each group will be inserted into the standard error of the difference in the two values will be computed. The degrees of freedom will also be computed. The conclusion will be to state whether the t-Tests is significant and represents a difference from pre-survey to post-survey knowledge.

### **Increase knowledge of STI prevention strategies**

Knowledge changes for STI prevention strategies will be measured using the pre-test and post-test data of the knowledge questionnaires before and after each of the educational modules # 1 - 4. The statistical measure for changes in STI knowledge will be computed similarly to the previous discussion of measuring increased knowledge of HIV prevention strategies.

### **High Risk Sexual Behaviors**

Descriptive statistics will be utilized to assess reported HRSB. Data will be analyzed to assess if there was a reduction of HRSB. Data will be organized electronically for the computation of percentages and quantify results. Surveys will be utilized for measuring risky sexual behavior among MSM, and TGW. The safe sex behavior questionnaire emphasizes frequency of taking protective measures by participants such as consistent and correct use of condoms, refraining from online sex seeking, reduction in the number of sexual partners, refraining from excessive alcohol and illicit substance use before sexual encounters, as well as not engaging in exchange of sex for financial gain.

**Improve the number of healthcare provider interactions**

To begin the process of measuring an increase in patient-provider encounters, the number of patient appointments will be assessed before the m-Health program initiation by information provided in the pre-survey. That information will be assessed again with the post-survey question that asks about any new visits since the start of the m-Health program. The results will be analyzed and then will be compared to the number of appointments that were made and kept after completion of the program. The writer will compare the number of encounters after program completion using descriptive statistics. Descriptive statistics is a way to describe the sample and create a frequency distribution of the variable. A frequency distribution is one variable whereby the x-axis contains the possible value of that variable and the y-axis presents the tally of each value.

**Demographic Information**

In addition to the program outcomes measures, demographic information of the sample will be collected and analyzed. A descriptive analysis of demographic data regarding participant characteristics and online STI/HIV information seeking behaviors utilizing will be conducted based on the HIV Risk Survey. Demographic information is included in the survey to identify and track characteristics and background information on the population.

*Sexual orientation and behaviors.* To analyze sexual orientation and behaviors the writer will evaluate MSM self-reported sexual encounters (i.e. online sex seeking, number of sexual partners, and number of condomless sexual encounters) and compare these reports to TGW self-reported sexual behaviors using the same survey questions. Descriptive statistics will be used to describe the sexual behavior characteristics of participants in the sample. Measures of central

tendency are used in descriptive statistics, which are the mean, median, and mode. These statistics are descriptions of the centrality of frequency distribution. The mean will represent the average of reported sexual behavior, the median will be the exact middle of sexual behaviors and the mode will represent the most reported sexual behaviors.

### **Perceived Program Outcomes**

The program was initiated with a conversation with the stakeholders via interviews and the completion of the program will also include interviews with the stakeholders. The interviews will be evaluated using content analysis after program completion. Content analysis is a qualitative measure that can be used after interviews are conducted to make sense of the content of the feedback gathered from the stakeholders as the evaluator assesses what needs to change about the program and what is working well. After interviews are completed, common themes or supportive quotes will be extracted, read, and reread to identify areas where improvement is possible. The writer will validate with the stakeholders the findings of the possible changes to ensure the accuracy of the findings. Credibility will be achieved from audio recordings. Trustworthiness will also be confirmed by findings that provide descriptions of experiences by the stakeholders. Transferability will be limited due to the writer only obtaining information or assessing existing problems at Facility-E. These same issues may not apply to another setting making this nontransferable.

### **Timeline**

The time to complete the implementation of the entire project is expected to be 18 weeks, including time for preparation, gaining permission and support from Facility E Administration, getting approval from the IRB board, conducting the project, analyzing the data, and

communicating the results. A timeline for the implementation of the project can be found in

Figure 1.

Figure 1: Timeline for implementation Using ARCC Model for EBP

Step in ARCC EBP Model	Action	Timeframe to Complete
Assessment of Organizational Culture and Readiness for EBP	<ol style="list-style-type: none"> <li>1. Set up meeting with Administration at Facility E</li> <li>2. Meet with administrator at Facility E to describe program and gain support</li> <li>3. Obtain approval from Daemen College IRB</li> <li>4. Meet with stakeholders to identify depth of HIV problem and suggestions for program</li> <li>5. Meet with community stakeholders to identify depth of HIV problem and community support</li> </ol>	Week 1-2
Identification of Strengths and Barriers to EBP Implementation	<ol style="list-style-type: none"> <li>6. Analyze data from step 1 to identify strengths and barriers to EBP implementation</li> <li>7. Review current education at Facility E</li> <li>8. Discuss how m-Health can add to current education practices</li> <li>9. Discussion on what m-Health can add to the practice i.e ability for participants to access useful information on HIV from home</li> <li>10. Discussion on how m-Health may open dialog between patients and providers and improve encounters</li> </ol>	Week 3
Development and use of Mentors	<ol style="list-style-type: none"> <li>11. Educate staff on m-health program</li> <li>12. Train mentors on implementation and how to access to m-Health quizzes pre and post modules</li> </ol>	Week 4-5
Implementation	<ol style="list-style-type: none"> <li>13. Electronic resources created i.e. Google site, FB page, Dissemination of recruitment letters and flyers, launching of m-Health with access to HIV Risk Survey and week 1 module including pre and post quiz</li> </ol>	Week 6-8

Evaluation and Communication	14. Gathering all the data analysis from the survey information and analyzing it. 15. Communicating the content analysis information to the stakeholders at Facility-E. 16. Communicating results with administration regarding what worked in the program and if implementation is a possibility.	Week 9-18
------------------------------	--	-----------

### **Budget**

Each change in practice requires a budget to ensure that costs do not outweigh the benefits of the program. The budget for the m-Health Program for HIV Prevention in MSM and TGW is presented in Table 3

The budget will be presented at a meeting that was set up by the writer with the administrator day one of week one at Facility E. The budget will include the cost of meetings with stakeholders to identify the depth of the HIV problem, and any suggestions for the program. The budget will also include discussions regarding current education provided for patients at facility E and how m-health can add to current education practices. Barriers and strengths of the program will be discussed with stakeholders with mention of how participants may access useful information on HIV from the comfort of their home. Discussion with the social work staff and the nurse practitioner will offer ways to improve dialogue between patients and providers. Development and use of mentors will also be included in the budget and the implementation process which includes the creation of the Google site, Facebook page, dissemination of recruitment letters and flyers which will be handed out by the medical secretary as well as funds needed to launch the survey and incorporate each module with pre-and post-quiz. Additionally, ongoing costs will be factored in with the thought that Facility-E may decide to shift

responsibilities and or reshape the program to fit the needs of the facility. Ongoing costs reflect the amount needed for the launch of the program every 17- 19 weeks. Initial Cost \$3644.00, ongoing Cost \$2533.00, total cost \$ 8210.00

Item	Initial Costs	Ongoing Cost	Total Cost
Meeting with administration to gain approval at Facility-E Meeting with stakeholders to describe the program. Meeting to discuss depth of issue	● \$555.00	● \$136.00 for restart of the program with same staff	● \$691.00
Meeting to review current education and dialog on how to improve dialog between the community and staff	● \$923.00	● \$276.00 Discussion of improvements after first launch of m-health	● 1199.00
Development of Mentors	● \$816.00	● \$771.00	● \$1587.00
Implementation of the m-Health program	● \$850.00	● \$850.00	● \$1700.00
Evaluation of Data by writer	● \$500.00	● \$500.00	● \$500.00
Evaluation of Data by writer	● \$500.00	● \$500.00	● \$1000.00
Total Costs	● \$3644.00	● \$2533.00	● \$8210.00

### Return on Investment

Not only does m-Health stand to help increase financial gain at Facility-E, but this intervention can also potentially increase patient visits. There may not be a cost-savings noted initially but the practice may increase in revenue over time. This is a hypothesized return on investment but based on evidence that concludes that if m-Health education is provided to MSM and TGW giving them resources so they make connections and build rapport with nurse practitioners or other providers, participants and others may become patients at Facility E. Greater numbers of patients added to the practice, may potentially increase the popularity of the intervention. Additionally, there can be potential to decrease in HIV acquisition and transmission of HIV in this population, therefore, increasing negative STI/HIV results. For example, if the nurse practitioner can gain trust by having a dialog with patients via text message, email, and/or comments on social media, the participant may begin to feel comfortable enough to disclose information. This activity may also lead participants to make appointments for regular STI testing. This program will ultimately identify gaps in HIV education amongst the nurse practitioner staff as well as the community they serve in this location.

### **Communication Plan**

The results of this evidence-based project will be presented to stakeholders associated with the facility via a handout and a short verbal presentation. The handout will review the purposes methodology, resources that were used, analysis, and conclusion of the findings. The findings will enable stakeholders to weigh the effectiveness of the intervention and improve patient/provider encounters, increase patient HIV knowledge as well as strategies to decrease HRSBs, and the acquisition and transmission of HIV among MSM and TGW.



The verbal presentation of the conclusions will include recommendations for future programs. An example of future recommendations maybe that stakeholder's partner with app owners and sexual health experts to increase and maximize the impact of the m-Health program and expanded programs within the apps. The enhanced features will need to undergo usability testing regarding the language used, type of information, and length of entries to establish an interface that provides users with the desired information in easy formats (Czarny & Broaddus, 2017).

### **Summary**

Changing the culture in an already established clinical practice may be difficult. The staff may not recognize issues within the community that they serve. Some clinicians are not ready to embrace new things for fear of change. Evidence based practice drives changes to patient care and should be implemented as new evidence arises. There have been several research studies and evidence to support individuals from the MSM and TGW population are receptive to receiving useful information regarding HIV in an electronic format. Engaging stakeholders and administration within a clinical setting is the best way to identify issues within a community and a great way to introduce the idea of change to provide better patient care.

Chapter four has described in detail the proposed clinical change. The implementation of an m-Health Program for the Prevention of HIV in MSM and TGW has been described. The goal of the m-Health program is to increase knowledge of HIV and STI prevention strategies, decrease the numbers of high-risk sexual behaviors, and improve the number of healthcare provider interactions. Stakeholders of Facility E, the setting, and the community of interest have

been stated. Support from the literature allowed the suggestion of reasonable outcomes to be presented. The survey questions, educational plan, and budget are also discussed.

## **Chapter Five**

### **Conclusions and Implications for Practice**

The purpose of this proposal is to describe the implementation of a mobile technology program (m-Health) among the LGBTQ community, specifically MSM and TGW. The m-Health Program for the Prevention of HIV among MSM and TGW will provide education on the prevention of HIV and knowledge of methods to reduce HRSBs, as well as education on methods to increase provider/patient interactions in the MSM and TGW communities. Participants will be able to access information via text message, email, or other social media platforms regarding HIV prevention strategies, as well as how to access providers who cater to the LGBTQ specifically the MSM and TGW groups.

Evaluation of the program will be included as a method of evaluating the outcomes for the program. Surveys will be distributed and analyzed to identify the intended program outcomes of increased knowledge of HIV and STI prevention strategies, decreased numbers of high-risk sexual behaviors and improved numbers of healthcare provider interactions. After evaluation of the outcomes identified in the program, changes will be made based on receipt of results of the HIV Risk Survey and content analysis of interviews with stakeholders.

### **Potential Impact**

Beyond expected outcomes of the m-Health Program for the Prevention of HIV among MSM and TGW, there are some potential impacts. Potential impacts may include increased confidence in caring for persons from the MSM and TGW populations among nurse practitioners. Nurse practitioners who are involved in the development, implementation, and sustainment of the program may experience increased knowledge and self-confidence. As a

result of more confident and culturally competent providers, the care for the MSM and TGW populations may be improved.

Improving patient outcomes will increase patient satisfaction and trustworthiness in providers overall. There may be a decrease in HIV acquisition and transmission of the disease if patients feel like they will not be judged for their chosen way of life. They may also be willing to be open and honest about their sexual practices, which will help guide the course of primary prevention as well as secondary and tertiary prevention strategies.

An increase in patient HIV testing, treatment, and follow-up may occur because of increased awareness of the nurse practitioner to offer testing, treatment, and follow-up. It is also possible that increased visits may result from the program introducing the user to the available resources in the community relative to HIV/STI prevention and or treatment to prevent HIV acquisition. The use of the m-Health Program for HIV Prevention may open the gateway to decreased feelings of discrimination in care and may increase the provider-patient interactions. The findings of the program may positively impact the Facility-E by motivating members of the LGBTQ community to seek STI health care in this setting. Nurse practitioners who have greater knowledge in caring for and educating MSM and TGW may bring awareness to the facilities' specialty care and attract more patients from the community to the practice.

### **Anticipated Outcomes**

The anticipated outcomes of the m-Health Program for the Prevention of HIV in MSM and TGW include an increased number of patient-provider interactions, increased knowledge of HIV and STI prevention strategies, and decreased high risk sexual behaviors in the selected

population. It is anticipated that there will be a significant decrease in high risk sexual behaviors, which will reduce HIV acquisition and transmission among the MSM and TGW populations.

It is anticipated that the results of the evaluation of the m-Health Program for the Prevention of HIV in MSM and TGW will add to the body of evidence that states the use of m-Health strategies are effective means of behavioral change in the MSM and TGW communities.

### **Implications for Practice**

Increased knowledge of HIV and STI prevention strategies may encourage advocacy within the LGBTQ community, specifically MSM and TGW, regarding the benefits of HIV/STI knowledge. This knowledge may help decrease the burden on the healthcare system and decrease the number of HIV positive patients the NP must see and treat. This knowledge of HIV prevention strategies may also assist the NP in incorporating sexual health topics in primary care conversations with patients. The NP can learn from the patients what the preferred language of the community is and become more competent in addressing the healthcare needs of the community. Decreasing the numbers of high-risk sexual behaviors may increase or improve the correct and consistent use of condoms amongst individuals and the entire community. Competent providers who understand the healthcare needs and language in this community, may improve the number of healthcare provider interactions and build trust amongst MSM, TGW, and the healthcare system.

The finding of this proposal will potentially entice facilities to review current practices when it comes to their LGBTQ communities and their healthcare. By reviewing and taking into consideration the positive results of the intervention, nurse practitioners will be confident in their knowledge which will result in effective communication with patients in this group.

Understanding the language used in the TGW, and MSM population can be challenging and uncomfortable for some providers. If nurse practitioners are knowledgeable in identifying the issues this population faces, they will be able to provide quality care, and improve HIV/STI health care outcomes.

### **Future EBP Project/Research**

Future recommendations for research include interventions using social media to promote regular and frequent STI/HIV testing. The modules in these interventions offer locations of free testing sites. Additional resources should be provided such as available resources and government agencies that can provide counseling and education to high risk groups. Expanding the topics and then researching the usefulness of such additions is imperative to improved EBP.

Additional recommendations include incorporating gaming in the risk reduction modules that address exchange partners (Patel et al., 2016). Scenarios can be included in the module such as what would an individual ensure before any sexual encounters. Other examples of risk reduction would be matching questions such as steps in condom use. These scenarios can be administered through games or true or false questions such as “condom use is most important with all sexual encounters from start to finish”, true or false, just to name a few. The use of gaming is popular in education but the use of gaming in this population and in this platform may not be well studied.

Longitudinal studies are recommended to verify the unique behaviors and characteristics of MSM and TGW that use apps when compared to their non app using peers (Zou & Fan, 2017). The proposed outcome will promote the implementation of future programs that include

not only MSM and TGW but the remainder of the LGBTQ community to participate in these programs.

Preference for functionality and design of m-Health based HIV prevention tools are needed that are followed by the development, implementation, and evaluation of these new intervention strategies (Shrestha et al., 2017). There should be a consistent evaluation of what interventions work and are the most useful. Examples of this include whether or not online STI information seeking was best obtained through social media versus text messaging or emails. After data is reviewed, interventions for the best practices can be implemented.

Additionally, to ensure patient safety when utilizing social media for HIV prevention, more research is recommended to improve understanding of respondent ethics-related experiences (Chiu et al., 2016). One of the studies assessed ethical issues around using social media for HIV prevention was focused on low- and middle-income countries. The study found that older participants understood consent and trust using social media, text messaging, and or emails when compared to younger participants. Further studies should be conducted in the United States to see what ethical issues surrounding the use of these platforms and the dissemination of HIV prevention strategies and methods for decreasing HIV acquisition and transmission in the LGBTQ communities, specifically MSM and TGW.

### **Summary**

Chapter five highlights the anticipated and expected impacts of an m-Health Program for the Prevention of HIV in MSM and TGW. The goals of the program are to promote HIV prevention knowledge, decrease high risk sexual behaviors, and increase patient-provider encounters. It is anticipated that the program will decrease the acquisition and transmission of

HIV in the MSM and TGW populations. Findings from the program may motivate the facility to incorporate interventions such as m-Health in everyday practice. There may be a possibility to apply this intervention not only in the MSM and TGW group but the entire LGBTQ community. The success of the intervention in HIV behavior risk reduction may also encourage the administration to apply the m-Health intervention strategy with other disease processes and comorbidities.



## References

- Cao, B., Bien, C., Pan, S., Tang, W., Tucker, J. D., Zhao, P., Ding, Y., Luo, Z., Watson, J., & Mi, G. (2018). Linking young men who have sex with men (YMSM) to STI physicians: A nationwide cross-sectional survey in China. *BMC Infectious Diseases*, 18(1), Retrieved from <https://doi.org/10.1186/s12879-018-3145-2>
- Chiu, C. J., Menacho, L., & Young, S. D. (2016). The association between age and ethics-related issues in using social media for HIV prevention in Peru. *Ethics & Behavior*, 26(2), 99–109. <https://doi-org.ezproxy.daemen.edu/10.1080/10508422.2014.991868>
- Choi, E. P. H., Wong, J. Y. H., & Fong, D. Y. T. (2017). The use of social networking applications of smartphones and associated sexual risks in lesbian, gay, bisexual, and transgender populations: A systematic review. *AIDS Care*, 29(2), 145–155. <https://doi-org.ezproxy.daemen.edu/10.1080/09540121.2016.1211606>
- Costello, M., & Barron, A. M. (2017). Teaching compassion: Incorporating Jean Watson's Caritas processes into a care at the end of life course for senior nursing students. *International Journal of Caring Sciences*, 10(3), 1113–1117.
- Czarny, H., & Broaddus, M. (2017). Acceptability of HIV prevention information delivered through established Geosocial Networking mobile applications to men who have sex with men. *AIDS & Behavior*, 21(11), 3122–3128. <https://doi-org.ezproxy.daemen.edu/10.1007/s10461-017-1743-4>
- Engler, K., Ahmed, S., Lessard, D., Vicente, S., & Lebouché, B. (2019). Assessing the content Validity of a New Patient-Reported Measure of Barriers to Antiretroviral Therapy Adherence for Electronic Administration in Routine HIV Care: Proposal for a Web-

- Based Delphi Study. *Journal of Medical Internet Research*, 21(8), N.PAG. <https://doi-org.ezproxy.daemen.edu/10.2196/12836>
- Fields, E. L., Long, A., Dangerfield II, D. T., Morgan, A., Uzzi, M., Arrington-Sanders, R., Jennings, J. M., (2020). There's an app for that: Using Geosocial Networking Apps to access young black Gay, Bisexual, and other MSM at risk for HIV. *American Journal of Health Promotion*, 34(1), 42–51. <https://doi-org.ezproxy.daemen.edu/10.1177/0890117119865112>
- Fletcher, J. B., Reback, C. J., Clark, K., & Holloway, I. W. (2019). A multilevel analysis of social network characteristics and technology use on HIV risk and protective behaviors among transgender women. *AIDS & Behavior*, 23(5), 1353–1367. <https://doi-org.ezproxy.daemen.edu/10.1007/s10461-019-02391-1>
- Garett, R., Menacho, L., Young, S., & Young, S. D. (2017). Ethical issues in using social media to deliver an HIV prevention intervention: Results from the HOPE Peru Study. *Prevention Science*, 18(2), 225–232. Retrieved from <https://doi-org.ezproxy.daemen.edu/10.1007/s11121-016-0739-z>
- Gray, J., Grove, S. K., & Sutherland, S. (2017). *Burns and Grove's the practice of nursing research: Appraisal, synthesis, and generation of evidence* (8<sup>th</sup> ed.). St. Louis, MO: Elsevier.
- Hidalgo, M. A., Kuhns, L. M., Hotton, A. L., Johnson, A. K., Mustanski, B., & Garofalo, R. (2015). The MyPEEPS randomized controlled trial: A pilot of preliminary efficacy, feasibility, and acceptability of a group-level, HIV risk reduction intervention for young

- men who have sex with men. *Archives of Sexual Behavior*, 44(2), 475–485. <https://doi-org.ezproxy.daemen.edu/10.1007/s10508-014-0347-6>
- Ireland, M., Chen, Q., Schwartz, H., Ungar, L., & Albarracin, D. (2016). Action tweets linked to reduced county-level HIV prevalence in the United States: Online messages and structural determinants. *AIDS & Behavior*, 20(6), 1256–1264. <https://doi-org.ezproxy.daemen.edu/10.1007/s10461-015-1252-2>
- Iribarren, S. J., Ghazzawi, A., Sheinfil, A. Z., Frasca, T., Brown, W., Lopez-Rios, J., Rael, C. T., Balán, I. C., Crespo, R., Dolezal, C., Giguere, R., & Carballo-Diéguez, A. (2018). Mixed-method evaluation of social media-based tools and traditional strategies to recruit high-risk and hard-to-reach populations into an HIV prevention intervention study. *AIDS & Behavior*, 22(1), 347–357. <https://doi-org.ezproxy.daemen.edu/10.1007/s10461-017-1956-6>
- Kuhns, L. M., Mimiaga, M. J., Reisner, S. L., Biello, K., & Garofalo, R. (2017). Project LifeSkills - A randomized controlled efficacy trial of a culturally tailored, empowerment-based, and group-delivered HIV prevention intervention for young transgender women: Study protocol. *BMC Public Health*, 17, 1–7. <https://doi-org.ezproxy.daemen.edu/10.1186/s12889-017-4734-5>
- Linnemayr, S., MacCarthy, S., Kim, A., Giguere, R., Carballo-Dieguez, A., & Barreras, J. L. (2018). Behavioral economics-based incentives supported by mobile technology on HIV knowledge and testing frequency among Latino men and men who have sex with men and transgender women: Protocol for a randomized pilot study to test intervention

- feasibility and acceptability. *Trials*, 19(1), N.PAG. <https://doi-org.ezproxy.daemen.edu/10.1186/s13063-018-2867-1>
- Mangur, V (2020). *Top 20 app development software platforms*. Retrieved from <https://thinkmobiles.com/blog/best-app-development-software/>
- McEwen, M., & Willis, E. (2014). *Theoretical Basis for Nursing* (4th ed.). Philadelphia, PA: Lippincott Williams and Wilkins.
- Niakan, S., Mehraeen, E., Noori, T., & Gozali, E. (2017). Web and mobile based HIV prevention and intervention programs pros and cons -- A review..."Health informatics meets eHealth conference." Vienna, Austria, 2017. *Studies in Health Technology & Informatics*, 236, 319–327. <https://doi-org.ezproxy.daemen.edu/10.3233/978-1-61499-759-7-319>
- Patel, V., Masyukova, M., Sutton, D., Horvath, K., Patel, V. V., & Horvath, K. J. (2016). Social media use and HIV-related risk behaviors in young Black and Latino gay and bi men and transgender individuals in New York City: Implications for online interventions. *Journal of Urban Health*, 93(2), 388–399. <https://doi-org.ezproxy.daemen.edu/10.1007/s11524-016-0025-1>
- Sevelius, J. M., Keatley, J., Calma, N., & Arnold, E. (2016). “I am not a man’: Trans-specific barriers and facilitators to PrEP acceptability among transgender women. *Global Public Health*, 11(7/8), 1060-1075. <https://doi-org.ezproxy.daemen.edu/10.1080/17441692.2016.1154085>
- Shrestha, R., Karki, P., & Copenhaver, M. (2017). Interest in use of mHealth technology in HIV prevention and associated factors among high-risk drug users enrolled in methadone

maintenance program. *AIDS Care*, 29(9), 1144–1148. [https://doi-](https://doi-org.ezproxy.daemen.edu/10.1080/09540121.2017.1325439)

[org.ezproxy.daemen.edu/10.1080/09540121.2017.1325439](https://doi-org.ezproxy.daemen.edu/10.1080/09540121.2017.1325439)

Zou, H., & Fan, S. (2017). Characteristics of men who have sex with men who use smartphone

Geosocial Networking Applications and implications for HIV interventions: A systematic

review and meta-analysis. *Archives of Sexual Behavior*, 46(4), 885–894. [https://doi-](https://doi-org.ezproxy.daemen.edu/10.1007/s10508-016-0709-3)

[org.ezproxy.daemen.edu/10.1007/s10508-016-0709-3](https://doi-org.ezproxy.daemen.edu/10.1007/s10508-016-0709-3)

### Appendix A: Recruitment Letter

Dear potential participant:

Facility E has developed an m-Health Program for the Prevention of HIV in Men Having Sex with Men and Transgender Women. The program is designed to assist you in:

- Increasing knowledge of HIV and sexually transmitted infection prevention strategies
- Decreasing high risk sexual behaviors (HRSB)
- Improving patient/provider encounters and relationships

The m-Health Program for HIV Prevention will consist of 4 online learning modules that will contain information on the above topics. The m-Health program will also require participants to take a survey before each of the modules and again after completion of each of the modules.

The m-Health Program for HIV Prevention also has a Facebook group identified as “Get Informed” and can be accessed directly through your personal Facebook account. The Facebook page will allow you to receive information as well as post comments or questions for the Nurse Practitioner. Questions for the practitioner can also be asked privately through direct messenger. All information provided will be kept confidential. If you prefer to access the educational program but not join the Facebook group, you can provide your personal email or text information for access to the program.

All you must do to join the m-Health Program for HIV Prevention is to type this link into your browser and you will be able to start the process and “Get Informed”: [www.getinformed.com](http://www.getinformed.com)

## Appendix: B

## HIV Risk Pre-Survey

1. What is your age?
  - 18 – 24
  - 25-31
  - 32-38
  - 39-or above
2. Level of education
  - high school or below
  - high school completion or GED
  - some college
  - college graduate
3. Current residence
  - Rural
  - Urban
  - Suburban
4. What is your occupation?
5. What is your annual income?
  - 10,000-or less
  - 10,000-or above
6. What is your sexual orientation?
  - MSM
  - TGW
7. Have you participated in online sex seeking within the last three months?
8. What is the number of sexual partners you have had in the last three months?
  - 0-1
  - 2-or more
19. What is the number of condomless sexual encounters in the last three months including anal, oral, or both?
10. Have you visited a healthcare provider in the last 12 months via in person or use of technology?
11. Have you had any STI/HIV testing in the last three months?
12. Have you sought STI/HIV information online?

13. What do you find are the best ways to use mobile or technology platforms to obtain STI/HIV information?

#### HIV Risk Post Survey

1. Have you participated in online sex seeking within the last three months?
  - Yes
  - No
2. What is the number of sexual partners you have had in the last three months?
  - 0-1
  - 2-or more
3. What is the number of condomless sexual encounters in the last three months including anal, oral or both?
4. Have you visited a healthcare provider in the last 12 months?
5. Have you had any STI/HIV testing in the last three months?
6. Have you had contact with a provider in person or by virtual visit (zoom), DM, text message, email, or in person since completion of the pre-HIV Risk Survey and education modules?
7. Have you sought STI/HIV information online?
8. What do you find are the best ways to use mobile or technology platforms to obtain STI/HIV information?



## Appendix C: Matrix of Evidence

Reference	Description/Summary	Analysis/Evaluation	Synthesis
<p>Cao, B., Bien, C., Pan, S., Tang, W., Tucker, J. D., Zhao, P., Ding, Y., Luo, Z., Watson, J., &amp; Mi, G. (2018). Linking young men who have sex with men (YMSM) to STI physicians: a nationwide cross-sectional survey in China. <i>BMC Infectious Diseases</i>, 18(1), N.PAG.</p> <p><a href="https://doi-org.ezproxy.daemen.edu/10.1186/s12879-018-3145-2">https://doi-org.ezproxy.daemen.edu/10.1186/s12879-018-3145-2</a></p>	<p><b>Main Points:</b></p> <p><b>Research Type:</b> Cross-sectional survey</p> <p><b>Purpose:</b> the purpose of this study was to examine behaviors seeking sexually transmitted infection information online among Chinese YMSM and the Association with off-line physician visits.</p> <p><b>Main Findings:</b> Participants reported high trustworthiness of information gained from gay mobile apps. They also reported high interests and willingness to use apps that were MSM-friendly physician finder functions.</p>	<p><b>Strengths:</b> The study obtained participants at the highest risk for sexually transmitted infection</p> <p><b>Weaknesses:</b> The study used social media and other internet platforms which may overestimated the rate of online seeking information. The rate of visiting physicians may have also been overestimated due to that being a requirement of the study. Casual relationships could not be determined due to the research type.</p> <p>Why included: The study was included because it looked at a population that used technology to gain information on STI</p>	<p><b>Light of the Whole:</b> Social media is a platform for gaining information on several issues. Obtaining accurate information on STI such as HIV can promote better safe sex practices and prevent the spread of HIV.</p> <p>How relates:</p> <p><b>Similar:</b> The main goal was to assess STI information seeking behaviors using online technology</p> <p><b>Differs:</b> This article looked at apps that were targeted to link individuals with physician services</p> <p><b>Level of Evidence:</b> VI</p>

	<p><b>Conclusions:</b> Sexually transmitted infection information seeking online is correlated in common with visiting a physician among YMSM and providing better physician services to the population.</p>	<p><b>Evidence:</b> According to the research conducted in the study 92.4% on the men stated they were willing to use MSM-physician finding functions</p>	
<p>Chiu, C. J., Menacho, L., &amp; Young, S. D. (2016). The Association Between Age and Ethics-Related Issues in Using Social Media for HIV Prevention in Peru. <i>Ethics &amp; Behavior</i>, 26(2), 99–109.</p> <p><a href="https://doi-org.ezproxy.daemen.edu/10.1080/10508422.2014.991868">https://doi-org.ezproxy.daemen.edu/10.1080/10508422.2014.991868</a></p>	<p><b>Main Points:</b></p> <p><b>Research Type:</b> Quantitative study that used survey</p> <p><b>Purpose:</b> The purpose of the study was to assess participants from the HOPE social media HIV intervention in Peru experiences and perceptions of principals concerns and the influence of age on those experiences and perception</p> <p><b>Main Findings:</b> Findings suggest that age has an impression on participants experiences in social media-based HIV intervention</p> <p><b>Conclusions:</b> This study resulted when compared to</p>	<p><b>Strengths:</b> The use of social media has increased at an astonishing rate globally, so technology is able to reach multiple people at the same time</p> <p><b>Weaknesses:</b> Because the study was conducted in Peru, the study may lack generalizability outside of Peruvian MSM, Peru, and HIV studies.</p> <p><b>Why included:</b> The study used mobile technology to target the clinical problem of high acquisition of HIV in the LGBTQ population (Lesbian, Gay, Bisexual, Transgender, Queer).</p>	<p><b>Light of the Whole:</b> Technology is a platform that is used to access information via text, call, email, social media, ect. This is a sure way to reach the public</p> <p><b>How relates</b></p> <p><b>Similar:</b> The study incorporates social media to gather data for assessment</p> <p><b>Differs:</b> This study was conducted in Peru</p> <p>Level of Evidence: IV</p>

	juvenile participants, more senior participants were more probable to express higher levels of understanding of consent and trust that other participants were real.	<b>Evidence:</b> Research has shown, older adults individuals when compared to younger spend less time on social media. Gather evidence states this fact is a result of older adults have career, financial, and familial obligation. Older adults have limited time to participate in browsing the internet for fun.	
Choi, E. P. H., Wong, J. Y. H., & Fong, D. Y. T. (2017). The use of social networking applications of smartphone and associated sexual risks in lesbian, gay, bisexual, and transgender populations: a systematic review. <i>AIDS Care</i> , 29(2), 145–155. <a href="https://doi-">https://doi-</a>	<p><b>Main Points:</b></p> <p><b>Research Type:</b> Systematic review</p> <p><b>Purpose:</b> The purpose of this study was to critically appraise and summarize current literature regarding the use of social networking applications and its relations to sexual behaviors and sexual health effects in the LGBTQ population.</p> <p><b>Main Findings:</b> The studies findings included that the estimated prevalence of sexual risk behaviors and</p>	<p><b>Strengths:</b> The review followed PRI (Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines)</p> <p><b>Weaknesses:</b> The heterogeneity of the study design and outcome measure across several other studies prohibited the comparison of finding across different studies. Some of the findings are not reliable because of methodological problems</p>	<p><b>Light of the Whole:</b> Use of social networking apps on smartphones have the potential to positively affect sexual health behaviors.</p> <p><b>How relates:</b></p> <p><b>Similar:</b> The studies focus is on the target population which are persons largely affected by the HIV epidemic</p> <p><b>Differs:</b> The study focused on the LGBTQ community as a whole</p>

<a href="http://org.ezproxy.daemen.edu/10.1080/09540121.2016.1211606">org.ezproxy.daemen.edu/10.1080/09540121.2016.1211606</a>	<p>sexual health outcomes varies. App users appeared to be more sexually active and had more sexual partners.</p> <p><b>Conclusions:</b> The use of authenticated tools to measure sexual behavior and biological measures of STI including HIV are preferable because outcomes can be consistent to facilitate comparison of studies and pooling of data</p>	<p><b>Why included:</b> The study was included due to its targeted high STI risk population</p> <p><b>Evidence:</b> Studies have show that sex-seeking behaviors are more risky than offline sex-seeking that included likelihood of having unprotected sex multiple sex partners, and likelihood of being diagnosed with STI</p>	<p><b>Level of Evidence:</b> I</p>
<p>Czarny, H., &amp; Broaddus, M. (2017). Acceptability of HIV Prevention Information Delivered Through Established Geosocial Networking Mobile Applications to Men Who Have Sex With Men. <i>AIDS &amp; Behavior</i>, 21(11), 3122–3128.</p>	<p><b>Main Points:</b> <b>Research Type:</b> Quantitative study using a survey of 224 men at the Milwaukee Pridefest</p> <p><b>Purpose:</b> The purpose was to assess what types of HIV information was acceptable to MSM through established Geosocial networking applications</p> <p><b>Main Findings:</b> PrEP was one of the most acceptable types of information to be received through the GSN</p>	<p><b>Strengths:</b> Attempts to minimize duplicate surveys for a more accurate results by asking participants if they had completed the survey or participated in the past</p> <p><b>Weaknesses:</b> Possible self-reported bias using subject collected data</p> <p><b>Why included:</b> The focus is on ways to collect information on HIV prevention</p>	<p><b>Light of the Whole:</b> There is a disparity that is present among MSM subpopulations of African Americans represented the largest number of newly diagnosed HIV.</p> <p><b>How relates:</b></p> <p><b>Similar:</b> Recent years suggest mobile phones have assisted in facilitating HIV disease prevention and management amongst these groups.</p>

<a href="https://doi-org.ezproxy.daemen.edu/10.1007/s10461-017-1743-4">https://doi-org.ezproxy.daemen.edu/10.1007/s10461-017-1743-4</a>	<p>application despite its low uptake outside of larger cities.</p> <p><b>Conclusions:</b> All information categories of information were accepted amongst the participants despite the demographic differences. Greater use of condom reports during anal intercourse resulted it more acceptable to receive information using the app</p>	<p><b>Evidence:</b> Studies show in 2014 African American MSM newly diagnosed cases were between the ages of 13-34 years of age. In 2015 two-thirds of new HIV cases in Wisconsin were made up of racial or ethnic groups despite a population of 17%</p>	<p><b>Differs:</b> This study included the use of PrEP when asking how information was received</p> <p><b>Level of Evidence: I</b></p>
<p>Fields, E. L., Long, A., Dangerfield II, D. T., Morgan, A., Uzzi, M., Arrington-Sanders, R., Jennings, J. M., &amp; Dangerfield, D. T., 2nd. (2020). There's an App for That: Using Geosocial Networking Apps to Access Young Black Gay,</p>	<p><b>Main Points:</b></p> <p><b>Research Type:</b> Semi-Structured in-depth qualitative interviews using a purposive sampling strategy</p> <p><b>Purpose:</b> The studies purpose was to explore acceptability and feasibility of using internet applications for HIV/STI public health outreach</p> <p><b>Main Findings:</b> Participants explained GSN applications as an acceptable and feasible resource for practitioners and</p>	<p><b>Strengths:</b> A categorical analysis was conducted using qualitative data analysis software NVivo to search acceptability and feasibility of HIV and other STI prevention public health outreach using applications to YBMSM utilizers</p> <p><b>Weaknesses:</b> Sample bias concerning individuals amenable to nonsexual or nonsocial inquires may be an issue with the use of</p>	<p><b>Light of the Whole:</b> Use of social media and GSN apps continue to grow in popularity and for use of advertising and marketing. This suggest public health messaging can be successful in promoting HIV health information and resources for prevention.</p> <p><b>How relates:</b></p> <p><b>Similar:</b> Like other studies reviewed, this study suggests young</p>

<p>Bisexual, and other MSM at Risk for HIV. <i>American Journal of Health Promotion</i>, 34(1), 42–51. <a href="https://doi-org.ezproxy.daemen.edu/10.1177/0890117119865112">https://doi-org.ezproxy.daemen.edu/10.1177/0890117119865112</a></p>	<p>physicians in the public health subdivision to access the targeted YBMSM for HIV/STI prevention services and resources.</p> <p><b>Conclusions:</b> Generally, the participates in the study endorsed GSN apps as acceptable and feasible as a source for public health providers seeking to access YBMSM to provide resources for sexual health</p>	<p>DM (direct messaging) about a research study.</p> <p><b>Why included:</b> The high-risk population use of the app provides outreach for HIV /STI prevention services</p> <p><b>Evidence:</b> From the first app Grindr in 2009 along with others such as Jack'd, Growlr, and Scruff that are specific to MSM have been used to meet sex partners. 2015 GSN applications accounted for 60% of all internet-based sites to report newly diagnosed HIV infected MSM</p>	<p>black men who have sex with men have a disproportionate HIV burden. This study also included the accessibility of provider resources such as in article number one.</p> <p><b>Differs:</b> This study engaged YBMSM GSN app users that have higher risk of HIV/STI contraction and explored perspectives among the group on acceptability and feasibility of using the app.</p> <p>Level of Evidence: IV</p>
<p>Fletcher, J. B., Reback, C. J., Clark, K., &amp; Holloway, I. W. (2019). A Multilevel Analysis of Social Network Characteristics and Technology Use on HIV</p>	<p><b>Main Points:</b></p> <p><b>Research Type:</b> Quantitative Review using surveys on sociodemographic characteristics, HIV protective or risk behaviors and social networks,</p> <p><b>Purpose:</b> This study reviewed the empirical</p>	<p><b>Strengths:</b> This study was one of the first to empirically document the egocentric social network among transwomen and social network structure on HIV risk/protective behavior</p> <p><b>Weaknesses:</b> Participants were recruited from los</p>	<p><b>Light of the Whole:</b> Among transgender women there is a high acquisition and transmission of HIV. Additionally, other individuals in the LGBTQ community experience discrimination and social and marginalization. This why we want to use</p>

<p>Risk and Protective Behaviors Among Transgender Women.</p> <p><i>AIDS &amp; Behavior</i>, 23(5), 1353–1367. <a href="https://doi-org.ezproxy.daemen.edu/10.1007/s10461-019-02391-1">https://doi-org.ezproxy.daemen.edu/10.1007/s10461-019-02391-1</a></p>	<p>structure (duration, size, and density) of social networks used by transgender women, and how the network changes perceived HIV risk and protective behaviors that influence transgender women own protective /risk of HIV behaviors.</p> <p><b>Main Findings:</b> Analysis disclosed social network factors are associated with risk and protective factors of HIV behaviors. Additionally, gender identities of the alternate group (cisgender) and social network sites and technology use designed curbed theses associations.</p> <p><b>Conclusions:</b> Findings suggest HIV risk/protective behaviors were influenced by social network structures and dynamics of perceived behavior homophily were contingent on SNS/tech use.</p>	<p>Angles County and may not reflect transwomen living in other regions. Of the US in rural or less urban locations</p> <p><b>Why included:</b> Social network homophily has been used to describe patterns of HIV risk behaviors in the past. Also, members of the same social network often share similar attitudes, norms and beliefs surrounding HIV risk/protective behaviors.</p> <p><b>Evidence:</b> The past 20 years have demonstrated strong influenced of social network dynamics on HIV risk/protective behaviors within vulnerable groups. Social network structure elements have been shown to influence HIV risk behaviors that include condom use among network drug users.</p>	<p>evidence-based modes to reach this population.</p> <p><b>How relates:</b></p> <p><b>Similar:</b> Social network homophily is strongly influential in prediction of HIV risk and protective behaviors among transgender women. This effect was exclusive to alters with whom a subject communicated vis SNS/tech utilization.</p> <p><b>Differs:</b> Study was focused on HIV risk and protective behaviors.</p> <p><b>Level of Evidence:</b> IV</p>
--	--	---	--

<p>Garett, R., Menacho, L., Young, S., &amp; Young, S. D. (2017). Ethical Issues in Using Social Media to Deliver an HIV Prevention Intervention: Results from the HOPE Peru Study. <i>Prevention Science</i>, 18(2), 225–232. <a href="https://doi-org.ezproxy.daemen.edu/10.1007/s11121-016-0739-z">https://doi-org.ezproxy.daemen.edu/10.1007/s11121-016-0739-z</a></p>	<p><b>Main Points:</b></p> <p><b>Research Type:</b> Quantitative study utilizing t test and chi-square</p> <p><b>Purpose:</b> The study was designed to assess and follow up with experiences and perceptions of ethic related issues among MSM who were participants of the Harnessing Online Peer Education Peru Study (HOPE).</p> <p><b>Main Findings:</b> Participants did not express any concerns regarding ethics from the 2014 Facebook study on the subject</p> <p><b>Conclusions:</b> Participants appeared to trust that social media is valuable for HIV prevention research.</p>	<p><b>Strengths:</b> Due to the study being conducted in Peru, translation was conducted by a bilingually Peruvian physician who was a co-investigator. Back translation was also utilized by a bilingual investigator who assessed Spanish materials to concluded whether it maintained the meaning of the original English text.</p> <p><b>Weaknesses:</b> The study may have recall bias due to participants being contacted 1.5 years post study completed surveys regarding their experiences.</p> <p><b>Why included:</b> The HOPE Peru study utilized a popular social media app, Facebook based peer-led HIV intervention over 12 weeks that set out to increase HIV testing</p>	<p><b>Light of the Whole:</b></p> <p>Social media has been an effective tool in reaching high risk population for researched based interventions in HIV prevention</p> <p>How relates</p> <p>Similar: The study used the HOPE survey as in article number two</p> <p><b>Differs:</b> This study focused more on ethical issues surrounding the use of social media to deliver HIV prevention interventions</p> <p><b>Level of Evidence:</b> IV</p>
--	---	--	--



		<p>and prevention behaviors among Peruvian MSM who are at high risk for HIV.</p> <p><b>Evidence:</b> This study suggests that in the intervention group participants were more likely than the control group to get tested for HIV on a regular basis</p>	
<p>Hidalgo, M. A., Kuhns, L. M., Hotton, A. L., Johnson, A. K., Mustanski, B., &amp; Garofalo, R. (2015). The MyPEEPS randomized controlled trial: a pilot of preliminary efficacy, feasibility, and acceptability of a group-level, HIV risk reduction intervention for young men who</p>	<p><b>Main Points:</b>  <b>Research Type:</b> Randomized control trial using the mobile app MyPEEPS</p> <p><b>Purpose:</b> The study sought to verify initial efficacy, acceptability, and feasibility of a group based primary prevention intervention that was designed for the reduction in HIV risk behavior in ethnically diverse groups of YMSM (young men who have sex with men)</p> <p><b>Main Findings:</b> For the entire follow-up period, intervention participants were</p>	<p><b>Strengths:</b> This study used one of the highest levels of evidence to conduct the study</p> <p><b>Weaknesses:</b> The validity of the findings in the study is contingent on the accuracy of the participant retrospective self-report which is unavoidable with most research in sexual behavior. The non-probabilistic method of sampling in the LGBTQ community settings limit this pilot's outcome from</p>	<p><b>Light of the Whole:</b> This study proves along with others that the LGBTQ community would benefit from mobile based applications to promote a decrease in HIV risk and prevention material</p> <p><b>How relates:</b></p> <p><b>Similar:</b> This study suggest MSM may experience more forms of social discrimination in their families, ethnic/cultural settings, educational setting as</p>

<p>have sex with men. <i>Archives of Sexual Behavior</i>, 44(2), 475–485. <a href="https://doi-org.ezproxy.daemen.edu/10.1007/s10508-014-0347-6">https://doi-org.ezproxy.daemen.edu/10.1007/s10508-014-0347-6</a></p>	<p>less likely than the control group to have any sexual encounters while under the influences of mind-altering substances</p> <p><b>Conclusions:</b> The MyPEEPS intervention appeared feasible to run within the group MSM. This was evident by the enrollment of over 100 participants over 9 months with a fair amount of session attendance. Participants reported significant reduction in any sexual encounters (anal, oral) under influences of substances, and a marginal decrease of unprotected intercourse while under the influence of drugs or alcohol</p>	<p>generalizing to all 16-20-year-old individuals.</p> <p><b>Why included:</b> Study suggest discrimination is a contributing factor in isolation of the target group and increase risk for unprotected sexual behaviors</p> <p><b>Evidence:</b> Evidence suggest YMSM who use marijuana, alcohol, and other stimulants during sex are most likely to engage in unsafe sexual practices. Several studies suggest school, and family-based discrimination including peer victimization, family rejection, violence, are associated with homelessness which may precipitate numerous safety and health risk including increased sexual behaviors.</p>	<p>well as other social institutions</p> <p><b>Differs:</b> This study included the use of alternating cognitive substances increasing high risk behaviors in contrast with the previous studies.</p> <p><b>Level of Evidence:</b> I</p>
<p>Iribarren, S. J., Ghazzawi, A., Sheinfil, A. Z., Frasca, T.,</p>	<p><b>Main Points:</b></p>	<p><b>Strengths:</b> Advantages of the study where they used</p>	<p><b>Light of the Whole:</b> Social media and</p>

<p>Brown, W., Lopez-Rios, J., Rael, C. T., Balán, I. C., Crespo, R., Dolezal, C., Giguere, R., &amp; Carballo-Diéguez, A. (2018). Mixed-Method Evaluation of Social Media-Based Tools and Traditional Strategies to Recruit High-Risk and Hard-to-Reach Populations into an HIV Prevention Intervention Study. <i>AIDS &amp; Behavior</i>, 22(1), 347–357. <a href="https://doi-org.ezproxy.daemen.edu/10.1007/s10461-017-1956-6">https://doi-org.ezproxy.daemen.edu/10.1007/s10461-017-1956-6</a></p>	<p><b>Research Type:</b> Mixed-Method Evaluation using descriptive statistics</p> <p><b>Purpose:</b> The purpose was to analyze recruitment strategies seeking HIV negative MSM and TGW for a randomized controlled trial for efficacy in this population</p> <p><b>Main Findings:</b> The tool was successful in recruiting hard to reach populations for research and will remain essential and likely continue to be a successful tool.</p> <p><b>Conclusions:</b> Social media platforms were effective in recruitment of participants of all races when compared to other recruitment methods.</p>	<p>regularly used social media apps such as Facebook and Craigslist</p> <p><b>Weaknesses:</b> Online technologies are a fast-moving field especially in the arena of dating apps so, the outcomes reported in this study may not be replicated in the future.</p> <p><b>Why included:</b> The study was included due to its uses of mobile technology to obtain the subjects from the targeted population</p> <p><b>Evidence:</b> Evidence shows online venues may lead to recruiting younger person which is further supported by this study</p>	<p>technology is forever evolving so this is an effective way of communicating with the targeted population.</p> <p><b>How relates:</b></p> <p><b>Similar:</b> The study uses recruitment strategies of technology to gain participants</p> <p><b>Differs:</b> The focus was on recruitment strategies</p> <p><b>Level of Evidence:</b> I</p>
<p>Kuhns, L. M., Mimiaga, M. J., Reisner, S. L., Biello, K., &amp; Garofalo, R. (2017). Project LifeSkills - a randomized controlled efficacy trial of a culturally tailored, empowerment-based, and group-</p>	<p><b>Main Points:</b></p> <p><b>Research Type:</b> Randomized controlled study</p> <p><b>Purpose:</b> The purpose of the study is to test efficacy of the MyPEEPS Mobile</p>	<p><b>Strengths:</b> The study focused on young sexual minority men at the point or prior to sexual initiation. Testing a mobile-adapted evidence-based intervention</p>	<p><b>Light of the Whole:</b> Young MSM are vulnerable to HIV infection especially those from ethnic/racial minorities. 93% of all new HIV cases in the</p>

<p>delivered HIV prevention intervention for young transgender women: study protocol. <i>BMC Public Health</i>, 17, 1–7. <a href="https://doi-org.ezproxy.daemen.edu/10.1186/s12889-017-4734-5">https://doi-org.ezproxy.daemen.edu/10.1186/s12889-017-4734-5</a></p>	<p>Intervention to decrease acquisition and risk for HIV and promote safer health behaviors among young minority men ages 13-18 years.</p> <p><b>Main Findings:</b> Vulnerability among this group increases with age</p> <p><b>Conclusions:</b> The MyPEEPS web-based approach and mobile app format increased the potential reach of this intervention to this particular group</p>	<p>informed by occurrences of YMSM and the rigorous evaluation design, analysis and sample size by race, age and rural-based subgroups made this a strong study</p> <p><b>Weaknesses:</b> Findings were not clearly defined</p> <p><b>Why included:</b> The studies defining characteristics of the intervention focuses on the importance of psychosocial and contextual factors such as family, partner, and peer relationships. The study provided educational information to YMSM and raised awareness regarding minority stressors, emotional regulation, building skills for condom use, and negotiating interpersonal and substance related risk.</p>	<p>United States in 2017 were among youth 13-24 years, which proves there is a need of mobile technology to potentially reach this population</p> <p>How relates</p> <p><b>Similar:</b> This study utilized the same application used in study 8 to reach the targeted population</p> <p><b>Differs:</b> The target participants were early in their sexual experiences</p> <p><b>Level of Evidence:</b> I</p>
--	---	--	--

		<p><b>Evidence:</b> Evidence suggest mHealth based interventions may be chiefly salient for technology savvy youth. It may also be a method to reach target populations using educational information, game-based, and digital media learning focused at reducing HIV risk behaviors.</p>	
<p>Linnemayr, S., MacCarthy, S., Kim, A., Giguere, R., Carballo-Diequez, A., &amp; Barreras, J. L. (2018). Behavioral economics-based incentives supported by mobile technology on HIV knowledge and testing frequency among Latino/a men who have sex with men and transgender women: Protocol for a randomized pilot study to test intervention feasibility and acceptability. <i>Trials</i>, 19(1), N.PAG. <a href="https://doi-org.ezproxy.daemen.edu/10.1186/s13063-018-2867-1">https://doi-org.ezproxy.daemen.edu/10.1186/s13063-018-2867-1</a></p>	<p><b>Main Points:</b>  <b>Research Type:</b> Randomized pilot study</p> <p><b>Purpose:</b> The purpose of the study was to examines acceptability and feasibility of an intervention for prevention that uses text messaging combined with behavior economics (BE) incentive to increase retention of information on HIV prevention and increase HIV testing. The study focused on the Latino transgender community.</p>	<p><b>Strengths:</b> The study uses mobile technology to assist in accomplishing the study which is one of the newest forms of technology. The subjects are also offered an incentive for their participation.</p> <p><b>Weaknesses:</b> There were identified language barriers between researchers and participants, smart phone access, and at times participants phone numbers changed</p>	<p><b>Light of the Whole:</b> The aim of using mobile based applications and other technologies is to make access to HIV prevention, risk and other needed information easily attainable.</p> <p><b>How relates:</b></p> <p><b>Similar:</b> The study utilizes a mobile application as an intervention tool to increase HIV testing and prevention which is the focus of the EBP.</p>

	<p><b>Main Findings:</b> The study found that Latino MSM and transgender women may not be the only group that can benefit from Behavioral economics-based incentives (BE) for HIV knowledge and testing frequency but other ethnic and racial groups may benefit as well.</p> <p><b>Conclusions:</b> Using a new way of providing incentives to participants with BE may improve HIV prevention outcomes</p>	<p><b>Why included:</b> The article was included because it incorporates ways to obtain knowledge about HIV testing using mobile technology</p> <p><b>Evidence:</b> according to the Centers for Disease Control and prevention young persons between the age of 13 and 24 years old accounted for 26% of all HIV infections in 2014. The youth also made up approximately 50% of sexually transmitted infections in the US in 2008 with 51% occurring in young women and 49% in young men and 2013. Transgender persons who have gender identity or gender expression that differs from their assigned sex at birth resulted disproportionately burden by sexually transmitted infections in HIV.</p>	<p><b>Differs:</b> the study takes place in a community-based urban setting in Boston Massachusetts</p> <p><b>Level of Evidence:</b> I</p>
--	--	--	--

<p>NIAKAN, S., MEHRAEEN, E., NOORI, T., &amp; GOZALI, E. (2017). Web and Mobile Based HIV Prevention and Intervention Programs Pros and Cons -- A Review..."Health Informatics meets eHealth conference," Vienna, Austria, 2017. <i>Studies in Health Technology &amp; Informatics</i>, 236, 319–327. <a href="https://doi-org.ezproxy.daemen.edu/10.3233/978-1-61499-759-7-319">https://doi-org.ezproxy.daemen.edu/10.3233/978-1-61499-759-7-319</a></p>	<p><b>Main Points:</b>  <b>Research Type:</b> Systematic review</p> <p><b>Purpose:</b> The goal of the study was to review Web and Mobile-Based HIV prevention and intervention programs</p> <p><b>Main Findings:</b> Internet and web is a abundant source of valuable information for different levels of knowledge on HIV. Prevention programs that are web-based programs such as web based therapeutic education systems (TES) and web-based prevention programs such as Chat room based education programs can be used to increase awareness, avert HIV infection, and promote knowledge of HIV</p> <p><b>Conclusions:</b> Advantages of mobile and web-based interventions may possibly provide a consistent way to deliver HIV intervention</p>	<p><b>Strengths:</b> The study was conducted using search strategies of evidence-based articles</p> <p><b>Weaknesses:</b> Limitations of the study were not clearly defined</p> <p><b>Why included:</b> The study provides rich information and evidence -based results of HIV prevention, transmission, and care information that can be used which further supports the positive effects of web and mobile based utilization for HIV education delivery</p> <p><b>Evidence:</b> Evidence shows people who search online for sex partners which makes them at risk for HIV exposure and transmission of infection due to high risk behaviors. Mobile based technologies deliver education on HIV programs using</p>	<p><b>Light of the Whole:</b>  There are new opportunities to respect the position social media plays in HIV prevention and care. This mode of transmission of information has shown to be effective in increasing knowledge of HIV prevention, care, and treatment and should continually be used</p> <p><b>How relates</b></p> <p><b>Similar:</b> The article utilizes technology for HIV prevention strategies and interventions</p> <p><b>Differs:</b> This study compares to pros and cons of using mobile apps for HIV prevention and interventions</p> <p>Level of Evidence: I</p>
---	---	--	---

	information to an extensive community at a low cost. This method can also be used to spread information on HIV prevention	communication through internet or text messaging. Furthermore, mobile based interventions have shown to be an effective way to improve adherence to antiretroviral therapy (ART) by sending reminders for care and direct connection to health care providers.	
Patel, V., Masyukova, M., Sutton, D., Horvath, K., Patel, V. V., & Horvath, K. J. (2016). Social Media Use and HIV-Related Risk Behaviors in Young Black and Latino Gay and Bi Men and Transgender Individuals in New York City: Implications for Online Interventions. <i>Journal of Urban Health</i> , 93(2), 388–399. <a href="https://doi-org.ezproxy.daemen.edu/10.1007/s11524-016-0025-1">https://doi-org.ezproxy.daemen.edu/10.1007/s11524-016-0025-1</a>	<p><b>Main Points:</b></p> <p><b>Research Type:</b> In person cross sectional survey</p> <p><b>Purpose:</b> The purpose of the study was to understand social media use and how it can relate to HIV risk related behaviors to inform social media-based interventions</p> <p><b>Main Findings:</b> All participants used social media via mobile devices to access sex partners, exchange money for sex, or sex for cloths or drugs.</p> <p><b>Conclusions:</b> This study concludes the use of social</p>	<p><b>Strengths:</b> Persons at bars who appeared to be intoxicated were excluded from the study which makes the information more reliable. Also, the survey was given in a private area of the venue.</p> <p><b>Weaknesses:</b> This type of study may not reflect the long-term effect of the study; results are only accurate at the time of the study. Additionally, the use of convenience sampling from the selected venue may limit the data given differing sexual identity developing</p>	<p><b>Light of the Whole:</b> The results of this study confirm the thought that use of social media platforms are feasible to reach at risk urban youth.</p> <p><b>How relates</b></p> <p><b>Similar:</b> The study adds to the growing body of literature explaining how MSM (men who have sex with men) and transgender individuals utilize social media and the association to engagement in HIV-related risk behaviors</p>



	<p>media use as a tool to engage persons from the LGBTQ community is effective within ethnic/racial minorities, and lower income individuals in promoting HIV prevention and treatment activities.</p>	<p>trajectories. Self-administered surveys may not provide accurate information</p> <p><b>Why included:</b> The study is appropriate for inclusion due to its addition to the literature highlighting urban MSM and transgender women continue to have a high rate of new HIV infection and are not currently reached by typical HIV prevention interventions</p> <p><b>Evidence:</b> Evidence of the study state, 67.6% used mobile devices to log on to social media sites, and 87.3% of the participants logged on several times per day. 56.7% of persons used social media to seek sex partners, 9.8% exchange sex for drugs, and 19.6% exchanged sex for money or cloths.</p>	<p><b>Differs:</b> The studies focus is on “black and brown” youth and the use of social media for HIV prevention information delivery</p> <p><b>Level of Evidence:</b> IV</p>
Shrestha, R., Karki, P., & Copenhaver, M. (2017). Interest in	<b>Main Points:</b>	<b>Strengths:</b> Analysis of the data was preformed	<b>Light of the Whole:</b> Mobile based technology

<p>use of mHealth technology in HIV prevention and associated factors among high-risk drug users enrolled in methadone maintenance program. <i>AIDS Care</i>, 29(9), 1144–1148. <a href="https://doi-org.ezproxy.daemen.edu/10.1080/09540121.2017.1325439">https://doi-org.ezproxy.daemen.edu/10.1080/09540121.2017.1325439</a></p>	<p><b>Research Type:</b> Quantitative research using a standardized assessment using audio computer assisted self-interview (ACASI)</p> <p><b>Purpose:</b> The purpose of the study was to review interest in the use of mHealth technology in HIV prevention and associated individual level factors within high risk people who use drugs (PWUD) who are enrolled in a methadone maintenance program</p> <p><b>Main Findings:</b> The study resulted in a substantial interest among participants in using mHealth to receive HIV risk reduction information and to assess HIV risk behaviors</p> <p><b>Conclusions:</b> Overall the study established that PWUD are high risk but are interested in utilizing web-based tools as an approach in HIV prevention</p>	<p>using SPSS 23.0 criterion for statistical significance was <math>p &lt; 0.05</math>.</p> <p><b>Weaknesses:</b> The short period when the study was conducted may have yielded limited results. The study also relied on self-reported data which may be subject to desirability bias.</p> <p><b>Why included:</b> This study reviews the delivery of HIV prevention information and utilizes PWUD due to high risk behaviors contributing to the transmission of HIV</p> <p><b>Evidence:</b> Results revealed a significant interest in uses of mHealth based approached for purposes including information to receive medication reminders 72.3%, assess HIV risk behaviors 76.5%, and,</p>	<p>can be used in a variety of setting which shows that web-based delivery of interventions can reach a numerous amount of people in different settings</p> <p>How relates</p> <p><b>Similar:</b> The study uses technology to disseminate information on HIV prevention</p> <p><b>Differs:</b> This study assesses attitudes in delivery of HIV prevention information in a different setting</p> <p><b>Level of Evidence:</b> IV</p>
---	---	---	--

	within a common type of drug treatment settings	receive information about HIV risk reduction 65.8%.	
<p>Zou, H., &amp; Fan, S. (2017). Characteristics of Men Who Have Sex With Men Who Use Smartphone Geosocial Networking Applications and Implications for HIV Interventions: A Systematic Review and Meta-Analysis. <i>Archives of Sexual Behavior</i>, 46(4), 885–894. <a href="https://doi-org.ezproxy.daemen.edu/10.1007/s10508-016-0709-3">https://doi-org.ezproxy.daemen.edu/10.1007/s10508-016-0709-3</a></p>	<p><b>Main Points:</b>  <b>Research Type:</b> Systematic Review</p> <p><b>Purpose:</b> The purpose of the study was to review studies reported characteristics of app using MSM and potential feasibility of app-based HIV interventions.</p> <p><b>Main Findings:</b> The study found that there is high sexual risk among MSM app users. These risks include unprotected sex with numerous sex partners and substance abuse.</p> <p><b>Conclusions:</b> The study concludes that MSM app users were more likely to have gotten tested for HIV than non app users. Also, app using MSM had comparable rates of HIV occurrence when comparable to non app users. Still, app using MSM have a higher rate of sexual risk</p>	<p><b>Strengths:</b> Publication bias was not found in pooled data to be an issue in the study which reflected the representativeness of valid studies commenced</p> <p><b>Weaknesses:</b> No randomize sampling studies were found in this review which makes it difficult to conduct a population probability sampling research among hard to reach population</p> <p><b>Why included:</b> Use of mobile technology has found to be a valuable tool in effective communication</p> <p><b>Evidence:</b> Available data prove that when comparing non app using to app using MSM are younger, have a</p>	<p><b>Light of the Whole:</b> Due to the success in the use of mobile technology, providers should collaborate with developers of mobile apps to incorporate easy access to HIV prevention information</p> <p><b>How relates</b></p> <p><b>Similar:</b> This study was like others in that it reviewed the targeted population MSM and their use of mobile application</p> <p><b>Differs:</b></p> <p><b>Level of Evidence:</b> I</p>

	behaviors which make them prevalence of STI and out them at greater risk of HIV	higher education, identify as white (US or Australian), report higher income, and have a higher rate of engaging in risky sexual behavior, and STI. Comparing non app and app using MSM were more likely to have tested for HIV in their lifetime and have similar HIV occurrence.	
--	---	--	--